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# Corporate Reputation & COVID-19 in the Pharmaceutical Industry:

## An Analysis of Determinants and Impact on Public perception


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# Candidate Declaration

**I declare as follows:**

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Submitted for the degree of: Master of Science International Business Management

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# Abbreviation

| | |
|---|---|
| COVID-19 | Corona Virus Disease 2019 |
| CR | Corporate responsibility |
| CSR | Corporate Social Responsibility |
| EMA | European Medicines Agency |
| FDA | Food and Drug Administration |
| FMAC | Fortune’s Most Admired Companies |
| GDPR | General Data Protection Regulation |
| GH | General hypothesis |
| ISM | International School of Management |
| Q&A | Question and answer |
| R&D | Research and Development |
| RQ | Reputation Quotient |
| SPSS | Statistical package for social sciences |

# Abstract

Title: Corporate Reputation & COVID-19 in the Pharmaceutical Industry: An Analysis of Determinants and Impact on Public perception

This study examines the determinants of corporate reputation in the pharmaceutical industry before and after COVID-19 and explores their influence on public perception. A review of existing literature on corporate reputation in the pharmaceutical sector provides insights into key variables which influence corporate reputation and how to measure reputation.

Using a quantitative surveys questionnaire to analyze data, initial findings suggest that pharmaceutical companies have a reputation problem. Concerns about trust, pricing decisions as well as prejudices like “big bad pharma” are only examples for reasons why the reputation is so bad. Research objectives are to understand which variables influence corporate reputation, whether Covid has an impact on the reputation or not as well as how demographics are interrelated with reputation. Understanding the determinants that shape corporate reputation and their impact on public perception is crucial for the pharmaceutical industry.

The results of the survey help to answer the research questions and give insights about interrelations between important variables as well as recommendations how to deal with the reputation problem and how to use Covid to change the public’s perception.

# 1 Introduction

## 1.1 Topic description

Corporate reputation is an essential component of any company's success (Walker, 2010), including those operating in the pharmaceutical industry. The pharmaceutical industry plays a critical role in public health by researching, developing, and manufacturing drugs and medical devices. As such, the industry's reputation is crucial in maintaining the trust of stakeholders, including patients, healthcare providers, investors, regulators, and the public (Burke et al., 2011).

A positive reputation can help a company attract and retain customers, secure funding, and navigate regulatory hurdles more smoothly. On the other hand, a negative reputation can damage a company's credibility and lead to legal and financial repercussions (Walker, 2010).

Several articles as well as surveys by independent research institutes have shown that the pharmaceutical industry suffers from a reputation problem and does not have a good image within the population (Balog-Way et al., 2021; Parker, 2007). The main reasons given for the bad image are greed for profit (DEANGELIS, 2016), lobbying (Molé, 2005), lack of transparency with regard to the pricing of drugs, and lack of regulation (Van den Bogaert et al., 2018). These problems have existed for years and have been addressed frequently.

However, with the beginning of the COVID-19 pandemic, this seems to be changing. The pandemic is considered a global challenge in the current century and has had a significant impact on the reputation of various industries, including the pharmaceutical sector (Thomas, 2020). As the world struggles to cope with the pandemic, pharmaceutical companies have been at the forefront of developing vaccines and treatments to combat the virus (Sarkees et al., 2021). Based on the Ipsos Global Trustworthiness Monitor in 2021, the trustworthiness of the pharmaceutical industry increased from 25% in 2018 up to 31% in 2021 (“Ipsos Global Trustworthiness Monitor: Is Trust in Crisis?,” 2021). However, their actions have also been scrutinized, and their reputation has been influenced by factors such as vaccine distribution, pricing, and safety concerns (Correia Borges et al., 2022).

This dissertation aims to examine the determinants of corporate reputation in the pharmaceutical industry during the COVID-19 pandemic and their impact on public perception.

## 1.2 Research question and objectives

Based on the dissertation topic, which is described above, the following research questions are necessary to understand the main research objectives.

To clarify the research objectives of this dissertation, it is necessary to answer the following question: What will we know once the research is completed that we do not know yet? The related hypothesizes for the research questions are described in detail in chapter 4.8.3 (page 39).

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| **Research objective 1** | To understand the factors that build and form corporate reputation in the pharmaceutical industry. |
| **Research question 1** | What factors influence corporate reputation? |

**Table 1: Research Objective and Question 1**

In this dissertation, it is necessary to understand the factors which influence and form corporate reputation not only in a general way because enough literature already exists. It is important to understand the factors related to the pharmaceutical industry because these companies operating in a special environment.

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| **Research objective 2** | Examine how the public's perception influence corporate reputation. |
| **Research question 2** | How does the public think about the pharmaceutical industry and why? What influences the public opinion? |

**Table 2: Research Objective and Question 2**

Secondly, after defining which factors influence corporate reputation, a deeper analysis of the relationship between corporate reputation and the public is necessary because it is a critical one that can have a significant impact on a company's success or failure (Shamma and Hassan, 2009). Failure to do so can result in significant reputational damage and negative consequences for the company (Dean, 2004). Due to this reason, it is important to know what people think about the pharmaceutical industry, why they have this perception about the industry and what influenced their mind.

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| **Research objective 3** | To investigate the impact of a worldwide Crisis like Covid on corporate reputation in the pharmaceutical industry in Germany. |
| **Research question 3** | To what extent did the Covid pandemic and its coverage in terms of communication by the companies themselves and the media impact the corporate reputation of the pharmaceutical industry? |

**Table 3: Research Objective and Question 3**

The COVID-19 pandemic may have a significant impact on the corporate reputation of the pharmaceutical industry (Thomas, 2020). In many ways, the pandemic has created both challenges and opportunities for pharmaceutical companies, and their response to the crisis could have a significant impact on their reputation (Correia Borges et al., 2022). Therefore, it is necessary to understand in which way such a crisis can change corporate reputation based on the public's point of view.

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| **Research objective 4** | To analyze the relationship between demographical variables and public's perception on the pharmaceutical industry. |
| **Research question 4** | Do demographical variables affect the corporate reputation of the pharmaceutical industry by consideration the general public's perception? |

**Table 4: Research Objective and Question 4**

Demographical variables can certainly affect the corporate reputation (Newburry, 2012), it is essential for companies to be aware of these factors and work to address the concerns and perceptions of different demographic groups (Yeonsoo Kim, 2014). The pharmaceutical industry is a complex and diverse industry, and the way people perceive it may vary significantly depending on their demographics, such as age, gender, income, education, and cultural background (Bartikowski et al., 2011). A list of defined variables for this dissertation can be found in chapter 3 (page 27).

The research objectives and questions will be answered by doing quantitative research using a survey strategy for seeking claims of high generalizability (Bourke et al., 2016). Detailed information about research methodology and research strategy are discussed in chapter 4 (page 32) of this dissertation.

## 1.3 Justification

At first glance, it seems as if the bad corporate reputation is only a problem that is directly addressed to the pharmaceutical industry (Parker, 2007). As Shamma and Hassan (2009) mentioned in their study, understanding what influences the corporate reputation help the companies to manage their own reputation.

Therefore, the results of this dissertation could be very useful for the pharmaceutical industry to better understand why their reputation is not the best. Additionally, a lot of studies on corporate reputation have proposed a customer-based approach or primary stakeholder-based approach, but the importance of the general public's view (Shamma and Hassan, 2009) is not taken into account.

A research study by Wiedmann and Buxel (2005) shows that the general public's perception is the second most important group to influence the corporate reputation of a company. A lot of studies in the pharmaceutical industry are customer-based and product-based. Due to this reason, a dissertation which highlight the influence of corporate reputation by the public may be helpful to understand this problem from another point of view.

However, the issue of health concerns us all. Without the pharmaceutical industry and research, the current level of our health care would not be possible (Parker, 2007). Because of this unique selling point of the industry (Van den Bogaert et al., 2018), the reputation problem also affects us indirectly. In addition, the global population is one of the pharmaceutical industry's most important stakeholders and therefore has certain opportunities to exert influence (Van den Bogaert et al., 2018). The reputation problem can only be actively addressed if the population clearly addresses why the perception of reputation is so poor.

Furthermore, corporate reputation is an important building block of a successful business. Therefore, the relevance of this research work for the entire pharmaceutical industry is equally high (Walker, 2010).

## 1.4 Structure of the study

The dissertation is structured into six parts.

The literature review-chapter (chapter 2) provides a critical analysis of the existing literature on the topic and highlights any gaps in knowledge that this research aims to fill. The following points will be discussed:

- Definition of corporate reputation
- Factors which influence corporate reputation
- General information about the pharmaceutical market
- Corporate reputation problem of the pharmaceutical industry

Chapter 3 includes the conceptual framework. Chapter 4 (methodology) outlines the research design and methods used to collect and analyze data, including any limitations

and ethical considerations. Quantitative research methods will be used to answer the research questions.

The next chapter presents the findings of the research, through tables, graphs, and other visual aids. Additionally, this chapter interprets the findings and discusses their implications for the research question and the wider field of study. It will also address any limitations of the study.

The conclusion summarizes the key findings of the dissertation and their implications. It provides a reflection on the research process, highlight any contributions to the field of study and suggest areas for future research.

# 2 Literature review

## 2.1 Corporate Reputation introduction

The topic of corporate reputation is facing growing attention during the last years because lots of researchers found a relationship between a companies' reputation organizational performance (Walker, 2010). A positive corporate reputation can result in greater customer loyalty as well as financial benefits, such as higher premium prices and lower costs (Fombrun and Shanley, 1990). Therefore, managing and maintaining a strong corporate reputation is crucial for any business to succeed in today's competitive market (Dowling and Moran, 2012). But there are also some problems related to corporate reputation. It is important to define a well-accepted definition, and understand the following two aspects:

- Reputation could be issue-specific and may have different dimensions (Walker, 2010)
- Different stakeholders may have different perceptions of reputation (Walker, 2010)

The following sections will discuss these problems based on a critical literature review.

### 2.1.1 Definition

The identification of the definition of corporate reputation is a fundamental problem in the literature because so many different definitions exist and there is no agreement for one main explanation (Peshev, 2020).

The following table shows the most common definitions, especially Fombrun:

| **Definition** | **Author** |
|---|---|
| "A perceptual representation of a company's past actions and future prospects that describes the firm's overall appeal to all of its key constituents when compared with other leading rivals". | Fombrun (1996) |
| "A corporate reputation is a collective representation of a firm's past actions and results that describes the firm's ability to deliver valued outcomes to multiple stakeholders". | Fombrun and Van Riel (1997) |
| "The aggregation of a single stakeholder's perception of how well organizational responses are meeting the demands and expectations of many organizational stakeholders". | Wartick (1992) |

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|---|---|
| “Corporate reputation is a global, temporary stable, evaluative judgement about a firm that is shared by multiple constituencies”. | Highhouse et al. (2009) |
| “A set of key characteristics attributed to a firm by various stakeholders”. | Carter (2006) |
| “Reputation is formed over time; based on what the organization has done and how it has behaved”. | Balmer and Greyser (2003) |

**Table 5: Definition of corporate reputation**

Based on the definitions above, five key attributes of corporate reputation are defined by Kent Walter (2010):

(1) Corporate reputation based on perceptions which means that corporate reputation is not under anyone’s control and difficult to manipulate.
(2) Corporate reputation based on the perception of all stakeholders (internal and external).
(3) Corporate reputation creates comparability (e.g., between countries, competitors, or comparisons to previous reputation).
(4) Corporate can be positive or negative which has a significant impact on business performance.
(5) Corporate reputation is stable and enduring. Reputation cannot be developed in only a few days.

Corporate reputation is often described as an intangible asset (Shamma and Hassan, 2009). Intangible assets in general are described as nonphysical assets like patents, software, employees’ knowledge or the brand of a company (Peshev, 2020). It is not something that can be easily quantified or measured in terms of dollars and cents, but it can have a significant impact on a company's success or failure. A positive corporate reputation can reduce costs and uncertainty for a company, allows to charge customers with higher prices and attract investors and better applicants (Helm et al., 2011).

To sum it up, an overall definition for this dissertation is defined as “A relatively stable, issue specific aggregate perceptual representation of a company’s past actions and future prospects compared against some standard” (Walker, 2010).

The definition may seem appropriate at first glance, but there are two major issues that need to be considered. Firstly, reputation is often issue specific. A company can have different reputation for each topic (e.g., profitability, sustainability, or employer treatment) and secondly, each company can have a different reputation per stakeholder group (e.g., different point of view customer-investor). However, the following question should be asked while talking about corporate reputation: reputation for what and according to whom? (Walker, 2010).

### 2.1.2 What Corporate Reputation is not

Corporate reputation is not simply a company's branding, image, or identity. Those terms are often used interchangeably but are not the same. The following table helps to understand the differences:

| | **Organizational image** | **Organizational identity** | **Organizational reputation** |
|---|---|---|---|
| **Stakeholder** | External | Internal | Internal, external |
| **Perceptions** | Positive | Positive or negative | Positive or negative |
| **Relevant question** | Who/what do we want others to think we are? | What/who do we believe we are? | What are we seen to be? |

**Table 6: Differentiation between image, identity, and reputation (Walker, 2010)**

Corporate identity is defined by Whetten and Mackey (1985) as the most central, enduring, and distinctive core character of a company from an inside perspective. Identity is the association about the organization held by organizational employees (Brown et al., 2006).

Organizational image is simply described by Keller (1993) as the perception held by customers (external view). From the company's perspective, it is viewed as a desired image (Walker, 2010). It could be the construed association about a company that organizational members believe others outside the organization hold about the company or an intended association about a company that company's members want important people to hold (Brown et al., 2006).

Based on the table above, it is important for firms to ask the following question regarding their corporate reputation:

- Question 1: Who are we as an organization? (Brown *et al.,* 2006)
- Question 2: What does the organization want others to think about the company? (Brown *et al.,* 2006)
- Question 3: What does the organization believe others think of the company? (Brown *et al.,* 2006)
- Question 4: What do stakeholder think of the company? (Brown *et al.,* 2006)

### 2.1.3 How to measure corporate reputation

As mentioned above, corporate reputation is a complex intangible asset and developed through socially complex interactions between a company and its stakeholders (Acquaah, 2003). Thus, it is hard to measure (Walker, 2010).

The most common empirical paper for measuring attributes of corporate reputation where a quantitative approach is used, is Fortune's Most Admired Companies (FMAC)

survey (Burke et al., 2011). Fortune has annually surveyed analysts and managers on their perception about Fortune 1000 companies as well as other global firms since 2009. The following most common independent variables for measuring reputation were named by FMAC and other smaller surveys:

- Prior/current economic/financial performance (Roberts and Dowling, 2002),
- Industry (Cable and Graham, 2000),
- Size (Fombrun and Shanley, 1990),
- Prior levels of corporate reputation (Flanagan and O'Shaughnessy, 2005),
- Media visibility and exposure (Deephouse, 2000),
- Market risk (Brammer and Pavelin, 2006),
- Social responsiveness (Turban and Greening, 1997),
- Quality of product/services (Fang, 2005),
- Management techniques (Zyglidopoulos, 2005),
- Price charged (Fang, 2005),
- Consumer visibility (Carter, 2006)

Additionally, Fombrun et al. (2000) developed the Reputation Quotient (RQ) , "a multi-dimensional construct composed of six dimensions that identified stakeholder's perceptions about the reputation of a company" (Shamma and Hassan, 2009):

- Emotional appeal
- Products and services
- Vision and leadership
- Social and environmental responsibility
- Workplace environment
- Financial performance

For this dissertation, the RQ by Fombrun et al. (2000) is used because it is one of the most common used measures for corporate reputation and accepted by a lot of researchers.

It is important to note that measuring corporate reputation is an ongoing process. Thus, there are some limitations because due to the complex nature of corporate reputation, no quantitative measuring approach/framework or RQ can identify all attributes of reputation. Some further, topic-specific research is necessary to identify what precisely needs to be done to improve corporate reputation (Burke et al., 2011).

### 2.1.4 Corporate Reputation and customers ethical perception (moral hazard)

The role of customers in relation to corporate reputation (Carroll and Carroll, 2013) is really important because customers are considered to be one of the most important primary stakeholders for a company (Shamma and Hassan, 2009).

Corporate reputation is influenced by customers experience, trust, and customers' ethical beliefs. This reputation building is outside the company's controll (Brunk, 2010)

and can affect other stakeholders' view about a firm, especially in such a highly competitive landscape (Shamma and Hassan, 2009).

A consumer-based corporate reputation is associated with thoughts and feelings, which lead into beliefs about a company (Helm et al., 2011). Thus, customers reputation about a company is defined as "the customer's overall evaluation of a firm based on his or her reaction to the firms' goods, services, communication activities, interactions with the firm and/or its representatives (e.g., employees, management) and/or known corporate activities", (Walsh and Beatty, 2007). From a customers perspective, there is a lack of information and a presence of incomplete and/or asymmetric information in markets which makes consumers unsure about the ability of a company to deliver reliable products or services (Acquaah, 2003). This moral-hazard phenomena is typical for the relation between customers and the pharmaceutical industry for example (Morgan and Zane, 2022).

Furthermore, researchers have found that especially customers' ethical perceptions influence the evaluation of a company. These findings highlight the way in which consumers as stakeholders can play an important role in the dissemination of corporate reputation (Brunk, 2010). The ethical beliefs of customers can be separated into three different parts:

| **Types of customer beliefs** | **Description** |
|---|---|
| Descriptive beliefs | First-hand experience. One of the main ethical evaluation based on the direct interaction between customer and company. |
| Informational beliefs | Independent media as main soure of information. Additionally word-of-mouth or anonymous evaluation websites. |
| Inferential beliefs | Beliefs, establisehd on the basis of inferences. Those beliefs often fail to reflect the reality (eg. unfounded negative beliefs about a company) |

**Table 7: Types of customer beliefs (Brunk, 2010)**

The most common ethical inferences based on the moral-hazard phenomena can be grouped into four categories:

Company specific issues: Those issues can relate to the structural setup of a company or are of economic nature. Some corporate ethicality indicators for the likelihood could be profitability as an economic indicator or the type of ownership as structural indicator. A company's' size and market share as well as high profits can be seen as ethical/unethical from a customer's perspective (Brunk, 2010). Specifically profitability is in the context of corporate reputation and pharmaceutical industry a main point when talking about the negative reputation of this industry (DEANGELIS, 2016).

Product specific issues: Just the name of a product or packaging and price can be associated with ethicality. Does a cheap price automatically mean unethicality? This cannot be characterized as proportional but affects the way of thinking from a consumer's perspective (Brunk, 2010).

Category specific issues: Consumers often make a connection between the degree of competition in an industry sector and the likelihood of unethical business practice. Market positions like a monopoly in a specific market or niche is also linked to unethical behavior. Banks, pharmaceuticals or airlines are common examples for companies who promote unethical connotations (from customers' perspective), (Brunk, 2010).

Origin specific issues: Depending on the origin of a company or where a company produce their products, consumers may associate an unethical behavior because level of development, education or working conditions differ in every country (Brunk, 2010).

Some companies have already gone through what it means when the customer calls the business model unethical, especially companies in the pharmaceutical industry (Valverde, 2012), because of the link between reputation and customers ethical beliefs (Brunk, 2010). Once a reputation is lost, it is hard to regain good reputation because bad reputation means decreasing customer loyalty and therefore a loss of competitive advantage (Ettorre, 1996).

### 2.1.5 Corporate Reputation and the role of media

The relationship of mass media, public opinion and media strategy regarding corporate reputation is very important because the media plays a significant role in shaping and influencing the reputation of a corporation (Meadows and Meadows, 2016), especially in today's online environment but why? Researchers found out that there are three main sources of information from which people gain knowledge:

- What we experience ourselves (Helm et al., 2011).
- What other people tell us based on their opinion (Helm et al., 2011).
- What we read/hear/see in the media (Helm et al., 2011).

The media landscape is a powerful tool that can either enhance or damage a company's reputation, depending on how it portrays the organization in its coverage (Vogler and Eisenegger, 2021).

Because many stakeholders don't have direct contact with a company, news reports, social media channels and other online sources are the only way to get informed about a company. Thus, the public consider these resources as trustworthy and credible (Meadows and Meadows, 2016). Due to this reason, the media has such a high power because based on their agenda setting, the media coverage could influence the public's perception of a company's reputation (Meadows and Meadows, 2016).

Talking about agenda setting of media is necessary to understand in which way the media have an influence on corporate reputation. The agenda-setting theory is divided into two parts:

| Theory | Description |
|---|---|
| First-level Agenda setting | Focus on salience. The influence of media extends beyond shaping public perception on what topics seem relevant. Media also have the power to shape how the public thinks about a particular topic or its attributes (Vogler and Eisenegger, 2021). |
| Second-level Agenda setting | Focus on attributes of objects. Affective attributes (favorable or unfavorable media coverage) can lead to good or poor reputation of a company. Substantive attributes refer to the characteristics of an object that can assist individuals in forming a cognitive perception of it (Meadows and Meadows, 2016). |

**Table 8: Agenda-setting theory**

In consequence, the more positive the tone in the news media coverage of a corporation, the more positive its reputation will be. The higher the salience of a corporation in the news media coverage, the more positive its reputation will be (Vogler and Eisenegger, 2021).

However, it is also important to classify the main media domains because they have a different impact on reputation:

| Type of media | Description |
|---|---|
| Corporate Media | Company-websites and podcasts for example to reinforce and shape the company's desired reputation (Helm et al., 2011). |
| Mass Media | Content and stories about a corporation on newspapers, articles, interviews, or magazines which affecting the peoples' way of thinking about it (Helm et al., 2011). |
| Social Media | Allows companies to communicate directly to the public but the content on social media platforms like Facebook is filtered and distributed by algorithms based on rules that are not completely transparent (Vogler and Eisenegger, 2021). |

**Table 9: Different types of media**

Thus, it is also important for a company to analyze and measure its media profile (Helm et al., 2011). Additionally, it is crucial to understand how consumer handle negative

information and its impact on reputation because negative information about a firm result in negative perception about a company and influence the publics' behavior towards a company (Kim and Choi, 2020).

### 2.1.6 Corporate Reputation and crisis

Corporate crisis and corporate reputation are linked together, this has been investigated by researchers in several studies. As mentioned in the previous chapters, reputation one of the most valuable intangible assets to create competitive advantage and can protect the firm in critical times (Helm and Tolsdorf, 2013). According to Warren Buffett (2014), it takes 20 years to build a reputation and only five minutes to ruin it.

Corporate crisis is defined as an "unexpected, nonroutine event that creates uncertainty and threatens an organization's priority goals" (Dean, 2004), as "the perception of an unpredictable event that threatens important expectancies of stakeholders and can seriously affect an organization's performance and generate negative outcomes" (Coombs, 2012), or as "an event that brings, or has potential for bringing, an organization into disrepute, which could imperil an organization's future profitability, growth and possibly its survival" (Lerbinger, 1997).

Therefore, a crisis can erode corporate reputation and creates uncertainty because crises normally results in negative publicity which effects the corporate reputation in a negative way (Dean, 2004). The following threats may occur when a crisis happened:

- Loosing social legitimacy (Dean, 2004)
- Affect how customers interact with the company (Coombs, 2007)
- Legal processes to determine what happened (Dean, 2004)
- Question of who to blame (from customers perspective) (Dean, 2004)

If a company has previously been highly regarded, its response to negative publicity and damaging claims is more likely to be viewed favorably. Conversely, if an organization has a bad reputation, it may be presumed guilty of harmful allegations regardless of the validity of its response (Tucker and Melewar, 2005) because crises give people the reason to "think badly of the organization" (Coombs, 2007).

In which way customers' perception about a firm will be changed due to a crisis depends on the crisis type. There are three main types of crises:

| Crisis type | Description | Example |
|---|---|---|
| Victim crisis | The organization is also a victim of this crisis. It results in a mild reputation threat. | Natural disasters (earthquake) |
| Accidental crisis | The organizational actions leading to the crisis were unintentional. A moderate reputation threat is the consequence. | Equipment failure (product recall) |
| Preventable crisis | The organization knowingly placed people at risk. Consequently, high reputation threat | Fraud |

**Table 10: Different types of crises (Coombs, 2007)**

Since purchase decisions by customers are based more and more on concerns like ethics, corporate social responsibility (CSR) or sustainability, reputation- and crisis management is even more important for a company (Tucker and Melewar, 2005). Talking about crisis management means safeguarding of its reputation and survival of the firm (Helm and Tolsdorf, 2013). But corporate reputation can be both: a factor and a consequence of crisis management. A successful crisis management leads to an improved reputation and successful reputation management leads to successful crisis management. Even during good times, corporate reputation needs to be actively managed (Tucker and Melewar, 2005).

Understanding the correlation between crisis and reputation is important for the reputation of the pharmaceutical industry because a lot of fraud incidences happened there over the last few years (Valverde, 2012) as well as understand if the corona pandemic has an impact on corporate reputation because it is also an unexpected crisis (Thomas, 2020).

## 2.2 Overview pharmaceutical industry and reputation

The interrelations between corporate reputation and customers beliefs are particularly interesting when looking at the business model of the pharmaceutical industry and the reason for the damage to its reputation (Parker, 2007).

The quality of literature for the pharmaceutical industry, the reputation of pharmaceutical industry as well as the development during Covid is expendable. In general, sources can be found on this topic but only a few of the sources are peer-reviewed articles. Many data collections are based on secondary sources, studies, or surveys, but these are not always evidence-based in a strict scientific context. Nevertheless, they provide a direction for how society perceives this problem.

### 2.2.1 Challenges for the industry

In recent years, there has been growing concern over the rising costs of drugs and access to affordable healthcare, leading to increased scrutiny of the pharmaceutical industry (Shaw and Whitney, 2016).

Rising Research and Development Costs: Developing new drugs and bringing them to market is a lengthy and expensive process. Pharmaceutical companies must invest a significant amount of time and resources into research and development, and the cost of clinical trials, regulatory approvals, and marketing can be high (Moreno and Epstein, 2019). A study by the Tufts Center mentioned that it can takes more than 10 years and costs of more than 2.6 billion USD to develop a new drug (DEANGELIS, 2016).

Patent Expiration and Generic Competition: When a drug's patent expires, other companies can produce generic versions of the drug at a lower cost, leading to a decrease in sales, and profitability for the original manufacturer. On the other hand, generic products can lower prices and yield significant cost savings for patients (Fujimoto et al., 2019).

Regulatory Challenges: As mentioned, the pharmaceutical industry is regulated by different organizations, and companies must comply with a range of laws. This can create challenges for companies, particularly as regulations are often completely different in the States, the EU and other countries, and becoming more stringent (especially because of fraud), (Valverde, 2012).

Changing Business model: The core business of pharmaceutical companies was the development of new drugs/medications, and medical differentiation of existing products in the last years, but the healthcare systems changed. The focus will be holistic therapy approaches (combination of drugs, care management, technology, and lifestyle). Due to this reason, pharma must collaborate with other providers in the future (Laws, 2015).

Rise of patients' empowerment: Based on the technological development and globalization, there is a powershift between patients/customers and the pharmaceutical companies. Patients taking a more active role in their healthcare by doing research on the

internet, asking critical questions, and sharing experiences on social media. Therefore, companies have to react and refocus on patients to gain trust (Laws, 2015).

### 2.2.2 Pharmaceutical market

To begin with, the pharmaceutical industry is an important industry for a various number of countries because of its economic pillar and market share, as well as because of the importance of developing life-saving medical treatments for humans against illnesses (Van den Bogaert et al., 2018).

The pharmaceutical market is a significant and rapidly growing industry (LEVAGGI et al., 2017). The total revenue turnover of the worldwide pharmaceutical market has experienced significant growth in recent years from 390.2 billion U.S. dollars in 2001 to more than 1,423.5 billion U.S. dollars by the 50 leading companies in 2021(IQVIA, 2021). This is a significant increase. Figure 1 shows the revenue in billion U.S. dollars of the worldwide pharmaceutical market from 2001 to 2021.

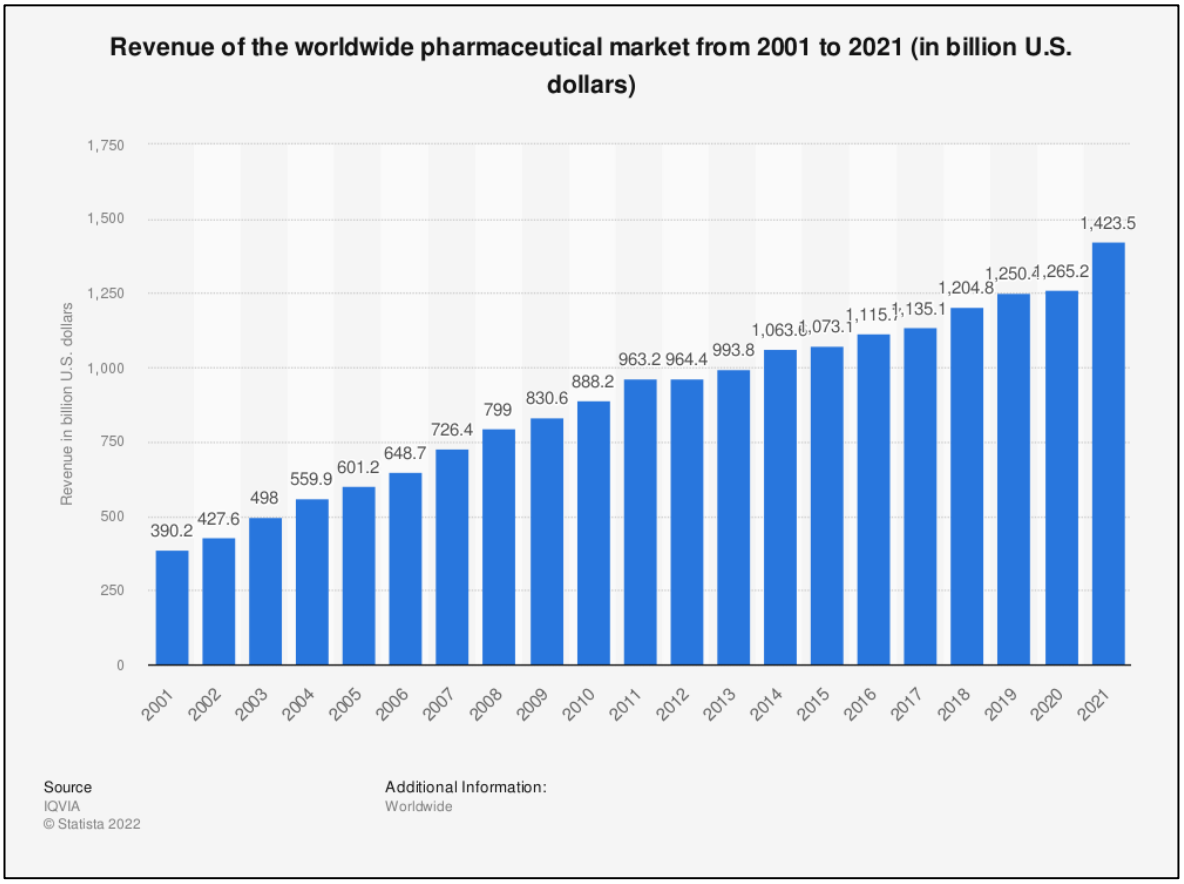


**Figure 1: Worldwide revenue pharmaceutical industry (IQVIA, 2021)**

Based on the revenue numbers, it seems like the business model of the industry is very successful. But on the other hand, while the world has changed a lot over the last 20 years, the pharma business model has remained. Products are developed based on science behind their medications (Laws, 2015). This makes it hard for customers to

understand the product, a power shift between pharmaceutical companies and customers exists due to a lack of knowledge. Patients need to rely on the pharmaceutical companies (Morgan and Zane, 2022).

The market is generally driven by factors such as aging populations, advances in technology and innovation, growing healthcare expenditure as well as reputation problems (Morgan and Zane, 2022). Companies invest heavily in research and development to discover new drugs and therapies, which could be very expensive (Molé, 2005). Once a drug is developed, it must undergo rigorous testing and approval processes before it can be marketed and sold to the public (Moreno and Epstein, 2019).

The pharmaceutical market is highly competitive and heavily regulated, with government agencies such as the FDA (Food and Drug Administration) (LEVAGGI et al., 2017) in the United States or the EMA (European Medicines Agency) in Europe playing a crucial role in ensuring drug safety and efficacy as well as competition (Backhaus, 1983).

### 2.2.3 Corporate Reputation and Pharma

Regarding the reputation of the pharmaceutical industry, several articles and surveys have shown that the pharmaceutical industry suffers from a reputation problem (Parker, 2007)(Balog-Way et al., 2021). The main reasons given for the bad reputation are:

- greed for profit (DEANGELIS, 2016)
- lobbying and market power (Molé, 2005)
- lack of transparency/trust (fraud) (Shaw and Whitney, 2016; Valverde, 2012)
- lack of regulation (Van den Bogaert et al., 2018)
- ethics and compliance (Shaw and Whitney, 2016)

The following chapters will cover the main aspects of “big bad pharma” (Molé, 2005).

#### 2.2.3.1 Profit before patients

To begin with, one of the biggest challenges faced by the pharmaceutical industry is the perception that drug prices are too high, putting profits before patients. Results from Edelman Trust Barometer (2017) highlighted that 80percent of the public believes that the pharmaceutical industry only focus on profit (Van den Bogaert et al., 2018). To understand where this bad reputation comes from, it is necessary to understand the business model of the industry because in comparison to other sectors, the pharmaceutical industry has a unique societal function (Laws, 2015).

The issue of high drug prices in the pharmaceutical industry is complex and multifaceted. Some of the key factors that contribute to high drug prices include:

- Research and development costs: The pharmaceutical industry invests a significant amount of money into researching and developing new drugs. The risk level increased and research in general is way more complex and unpredictable then

before. These costs are then passed on to consumers in the form of high drug prices (Parker, 2007).

- Marketing and advertising expenses: Pharmaceutical companies also spend a lot of money on marketing and promotion. These high marketing budgets are also relevant for high prices (Molé, 2005)

There is ongoing debate about how to address the issue of high drug prices in the pharmaceutical industry. Key challenge is to find the perfect equilibrium between affordable prices (making drugs accessible to all who need them), and efficiency (ensure that companies can make profit and cover R&D costs), (LEVAGGI et al., 2017). The pricing policy for pharmaceuticals is a practical and ethical question. The practical aspect is about profit seeking in a free market, while the ethical concerns about pricing are about acting responsibly (Buckley and Tuama, 2005).

Nevertheless, if drug prices are too high and not covered by healthcare insurances, people will stop filling prescriptions because they cannot longer pay for it (DEANGELIS, 2016).

#### 2.2.3.2 Lack of transparency and trust

Another important reputation problem of the pharmaceutical industry is lack of trust and transparency, because of their pricing strategy, many fraud-indigencies over the last years and manipulations of trial protocols or unreported negative results (e.g., side-effects (Van den Bogaert et al., 2018).

Health care fraud costs the US around 80$ billion a year. The main pharma fraud-cases in the last years include off-label marketing, best price fraud, false reporting for medical drugs, and illegal provisions for off voices discounts (Valverde, 2012). A good example (one of the biggest fraud-activities in the US) is the off-label promotion of “Zyprexa” by Eli Lilly in 2009. The company promoted its drug “Zyprexa” for off label medical treatments which are not approved by the FDA. Eli Lilly paid 1.415 $ fines and plead guilty (Valverde, 2012).

To avoid big fraud cases, the European Commission published a new policy on CSR for the pharmaceutical industry for example in 2011 (“The Process on Corporate Social Responsibility in the field of pharmaceuticals”). It was an initiative to address the lack of transparency between the government, public and the pharmaceutical industry (Valverde, 2012).

The pharmaceutical companies are operating in a multi-actor environment which includes various actors (industry, doctors, pharmacists, patients, government, …). Thus, the diversity of the different relationships between all actors makes it very difficult to gain trust (Balog-Way et al., 2021). The question is how to build renewed trust between patients, physicians, and the industry (Morgan and Zane, 2022) because this has an significant impact on the publics’ behavioral intention (Balog-Way et al., 2021).

For the pharmaceutical industry and the healthcare sector in general, trust and ethics are key. Due to a changing environment (globalization, technological and social changes), greater transparency and higher ethical standards are necessary because the public is expecting it. Patient support programs, code pf practices like the IFMA-Code "Building and maintaining trust" (International Federation of Pharmaceutical Manufacturers and Associations) aren't enough to achieve optimal output (Shaw and Whitney, 2016). To ensure compliance, it is necessary that pharmaceutical companies make stronger commitments and provide support (Parker, 2007).

### 2.2.4 Covid and the role of Pharma

With the beginning of the COVID-19 pandemic, the public's perception about the pharmaceutical industry seems to be changing (Thomas, 2020). The pandemic is considered a global challenge in the current century. Based on the Ipsos Global Trustworthiness Monitor in 2021, the trustworthiness of the pharmaceutical industry increased from 25% in 2018 up to 31% in 2021 ("Ipsos Global Trustworthiness Monitor: Is Trust in Crisis?," 2021).

The fast development of new vaccines and other drugs/treatments against Covid was an effective response of the pharmaceutical industry in the time of a worldwide pandemic (Correia Borges et al., 2022). Normally, because of all the regulations from FDA and EMA, a drug development process takes ten or more years. During Covid, it was possible to develop a vaccination within under a year (Sarkees et al., 2021).

The speed of access to effective treatments creates confusion among consumers regarding efficacy of the drugs and conflicting information led the public to question whom to trust (Sarkees et al., 2021). Especially during COVID, the industry was confronted with misinformation about vaccines and other treatments against the virus. The information dynamics on social media was a major challenge for the industry (Di Domenico et al., 2022). Additionally, supply chain issues (e.g., lack of inventory, delays, sourcing problems) were also a big problem during the pandemic.

On the one hand, the public praised the pharmaceutical industry for the fast development of vaccination because it could help to approach a global herd immunity against the virus but on the other hand the industry is criticized for a lack of vaccination distribution (Sarkees et al., 2021). By the end of 2021, more than 12 billion vaccine doses were produced and expected to deliver by the ten major pharmaceutical companies (Correia Borges et al., 2022). This would be enough to approach a global herd immunity but the distribution around the world was not balanced.

Nevertheless, Pharma had a difficult needle to thread in the pandemic: "create a vaccine as quickly as possible to end the pandemic, but also reassure a frightened public that safety hadn't been sacrificed for speed" (RepTrak, 2021). Not only the Ipso Global Trustworthiness Monitor showed an increasing reputation, also several other platforms like Global RepTrak mentioned it.

# 3 Conceptual framework

## 3.1 Framework design

The proposed framework for this dissertation based on Fombruns RQ (Fombrun and Shanley, 1990), which is described in chapter 2.1.3 (page 15). It shows selected variables which could influence corporate reputation. This conceptual framework aims to explore public perception of the pharmaceutical industry and the factors that influence these perceptions.

The conceptual framework was developed and reframed for the individual purposes of this dissertation based on a study which was applied to the wireless telecommunication industry in the US called “Customer and non-customer perspectives for examining corporate reputation” by Shamma and Hassan (2009). The following figure shows the conceptual framework of their study.

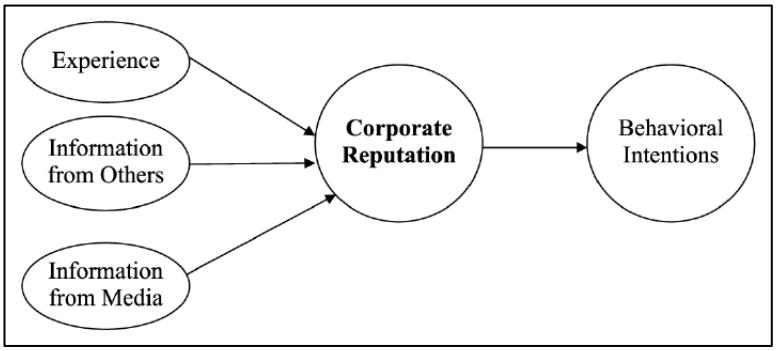


**Figure 2: Conceptual framework before adjustments (Shamma and Hassan, 2009)**

Their framework based on Ajzen and Fishbein’s (1980) theory of planned behavior. Experience, information from others and information from media are different sources which could influence corporate reputation. Corporate reputation is an “attitudinal construct” and represents the stakeholders’ evaluation of corporation (Shamma and Hassan, 2009). Behavioral intentions are derived from attitudes which means that these intentions are driven by corporate reputation, e.g., the decision to invest in a company or to purchase a product.

Additionally, the conceptual framework of the study by Balog-Way et al. (2021) which analyzed the effect of public trust on behavioral intentions in the pharmaceutical sector, is also very useful for this dissertation in an adjusted way as well. Their framework displaying the study’s hypothesis about the relationship between public trust in medial, societal and industry sources of advice and the public’s behavioral intentions(Balog-Way et al., 2021).

The next figure shows the conceptual framework for this dissertation which is an adapted version from Shamma and Hassan (2019) and Balog-Way et al. (2021):

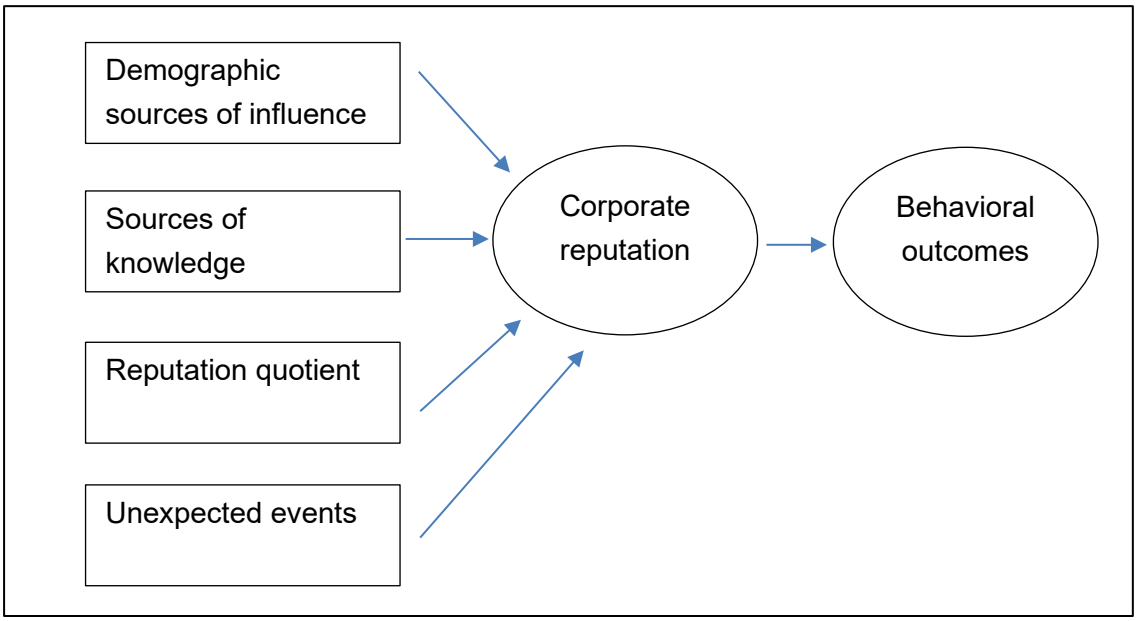


**Figure 3: Adapted conceptual framework**

To begin with, the conceptual framework is divided into 4 dimensions:

- Demographic sources as a dimension of influence (Bartikowski et al., 2011)
- Knowledge as a dimension of influence (Shamma and Hassan, 2009)
- Reputation quotient as a dimension of influence (Shamma and Hassan, 2009)
- Unexpected events as a dimension of influence (Thomas, 2020)

These dimensions are composed of different variables which are described in chapter 3.2 (page 28). The black arrows show a relationship which are justify by literature and influence corporate reputation but, nevertheless, statistical evaluations and correlation tests are necessary to analyze if there are significant relations between variables or not. The results will be analyzed in chapter 5 (page 42).

## 3.2 Description of relevant variables

Based on the literature from Coulter et. Al. (2005); Westbrook an Fornell (1979) as well as Newman and Staelin (1973), there is a relationship between knowledge and corporate reputation because the stakeholder (no matter if primary or secondary) are aware of these variables related to a company or industry. To answer research question 2, the following variables are important in the context of sources of knowledge:

| Variables | Description | Literature for justification |
|---|---|---|
| Personal experience | Level of personal experience with the pharmaceutical industry | (Coulter et al., 2005; Newman and Staelin, 1973; Westbrook and Fornell, 1979) |

| | | |
|---|---|---|
| Word of Mouth | Level of knowledge from other people (e.g., family, friends, colleagues) | (Coulter et al., 2005) |
| Mass Media | Level of knowledge from media consumption (e.g., articles, journals, news) | (Westbrook and Fornell, 1979) |
| Social Media | Level of knowledge from social media platforms (e.g., Facebook, Instagram) | (Helm et al., 2011) |
| Government/ Politics | Level of knowledge from the government/politics (e.g., speeches, draft legislation, publications) | (Keller, 2005) |
| Company | Level of knowledge from company websites | (Fombrun and Shanley, 1990) |

**Table 11: Dimension of knowledge and justification (adapted from Shamma and Hassan 2009)**

The variables of the reputation quotient (table 12) are necessary to answer research question 1 and can be measured in terms of:

| **Variables** | **Description** | **Literature for justification** |
|---|---|---|
| Media visibility and exposure | Is media visibility an important factor for reputation? | (Deephouse, 2000) |
| Social, environmental responsiveness | Is social responsiveness an important factor for reputation? | (Fombrun and Shanley, 1990) |
| Quality of products or services | Is quality an important factor for reputation? | (Fombrun and Shanley, 1990) |
| Financial performance | Is financial performance an important factor for reputation? | (Fombrun and Shanley, 1990) |
| Industry | Is the industry an important factor for reputation? | (Cable and Graham, 2000) |
| Prior level of corporate reputation | Is the prior level of reputation an important factor for reputation? | (Flanagan et al., 2011) |

**Table 12: Dimension of behavioral intention and justification (adopted from Shamma and Hassan (2009)**

Additionally, the dimension of demographic sources was added to the conceptual framework of this dissertation because some studies show (Brammer et al., 2009) a link between corporate reputation and some demographical variables. Bartikowski et al. (2011) shows in his research article “Culture and age as moderators in the corporate reputation and loyalty relationship” that it is important to show that cultural values/norms and age are important influences on how people interpret information (Bartikowski et al., 2011).

Thus, to answer research question 4, the following variables are chosen:

| Variables | Description | Literature for justification |
|---|---|---|
| Gender | Level of influence based on gender of participants | (Brammer et al., 2009 |
| Age of participants | Level of influence based on the age of participants | (Bartikowski et al., 2011) |
| Education level | Level of influence based on education | (Alemu and Zewdie, 2021) |

**Table 13: Dimension of demographic variables and justification**

Covid as an unexpected event is also added to the framework as a dimension of influence (Thomas, 2020). Based on the literature review, this dimension is important to answer research question 3. The relevant variables (which sources of information were used the most during Covid to get informed about the pharmaceutical industry) are mentioned in table 14 below:

| Variables | Description | Literature for justification |
|---|---|---|
| Personal experience | To which extend personal experience was used to get informed? | (Coulter et al., 2005; Newman and Staelin, 1973; Westbrook and Fornell, 1979) |
| Word of mouth | To which extend word of mouth was used to get informed? | (Coulter et al., 2005) |
| Corporate Media (company website) | To which extend corporate media was used to get informed? | (Fombrun and Shanley, 1990) |
| Mass Media (newspaper, articles, journals) | To which extend mass media was used to get informed? | (Westbrook and Fornell, 1979) |
| Social Media (Facebook, Instagram) | To which extend social media was used to get informed? | (Helm et al., 2011) |

| | | |
|---|---|---|
| Sources distributed by the Government | To which extend sources by the government were used to get informed? | (AlShurman et al., 2021) |

**Table 14: Variables of unexpected events and justification**

The methodology chapter (page 32) will show how these variables will be used in the questionnaire.

# 4 Research methodology and methods

Every dissertation is influenced by the chosen research philosophy/paradigm and research approach because research strategy and approach have direct influence on the whole research process from the conceptual framework, data collection, and analysis to the interpretation of findings (Yusuf Bilgin, 2017). The following research methodology framework is presented by Saunders et. Al (2019) which sums up all core decisions and can be used as a guideline for the development of the research paradigm and overall approach for this dissertation.

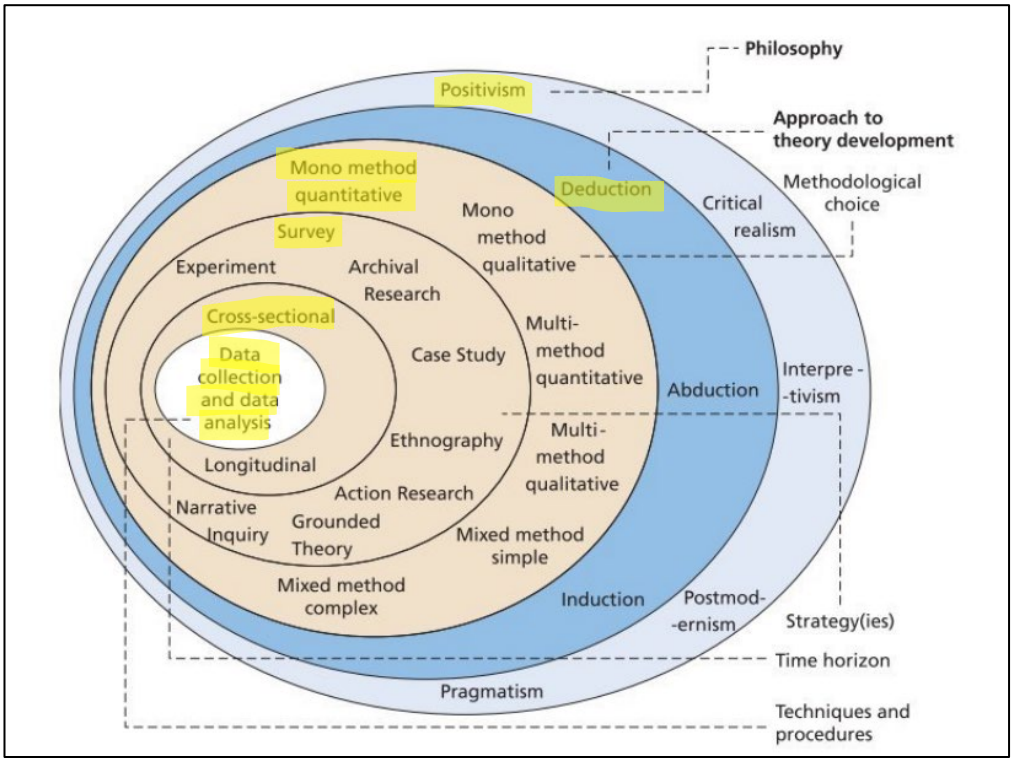


**Figure 4: Research onion (Saunders, 2019)**

By using the research onion to understand the connection between philosophy, approach, methodology, strategy, and techniques for a structured way (Seuring et al., 2021), the following research approach for this dissertation was developed:

| **Description** | **Choice** |
|---|---|
| Research Method | Quantitative research design |
| Philosophical assumptions | Positivism |
| Approach to theory development | Deductive approach |
| Methodological choice | Mono method quantitative |
| Research strategy | Survey |

| | |
|---|---|
| Time horizon | Cross-sectional |
| Techniques | Using a questionnaire |

**Table 15: Research paradigm dissertation**

## 4.1 Research philosophy

To begin with, positivism is used as research philosophy to generalize the findings of this dissertation (Buys and Oberholzer, 2023). Positivism is a common research philosophy associated with the idea that knowledge can only be derived from observable facts and empirical evidence, which means knowledge is virtually objective (Sallis et al., 2021).

The key principles of positivism are:

- Single tangible reality: Based on the assumption that one tangible theory exists, which can be understood, identified, and measured. This allows explanation and prediction in a causal framework (Park et al., 2020).
- Empirical Observation: “based on the rationalistic, empiricist philosophy that originated with Aristotle, Francis Bacon, John Locke, August Comte, and Emmanuel Kant.” (Mackenzie and Knipe, 2006).
- Objectivity: Positivists aim to maintain objectivity in research by minimizing bias, subjective interpretations, personal values, beliefs, and emotions from the research process (Park et al., 2020).
- Scientific method: Using scientific methods and procedures to test theory, formulating hypotheses, collecting data through systematic observation or experimentation, and using statistical analysis to develop true statements (Creswell, 1994).

Thus, based on the topic of this dissertation as well as the research objects and questions, positivism fits the best. Additionally, positivist thinking still dominates modern research which is mentioned in leading journals and professional organizations (Park et al., 2020).

## 4.2 Research approach to theory development

A deductive research approach is used because it is a systematic method of conducting research that starts with an existing theory and then testing the theory deductively through observation and /or data analysis (Sallis et al., 2021). This approach results in a test of significance which means to reject or accept the null hypothesis (Young et al., 2020).

In deductive research, the researcher begins by formulating a specific research question or hypothesis based on existing theories or previous research. The research questions based on the existing theory of corporate reputation (described in chapter 2.1, page 13). The hypothesizes of this dissertation expect relationships between variables, which can

be tested by using statistics. The chosen variables are described in chapter 3.2 (page 28), the defined hypothesizes are discussed in chapter 4.8.3 (page 39).

This research approach (from theory to data) allows researchers to test the different hypotheses of this dissertation systematically (Young et al., 2020). It emphasizes objectivity, generalizability, and the ability to make predictions based on the findings (Buys and Oberholzer, 2023). This approach is commonly used in fields such as psychology, economics, sociology, and other social sciences where numerical data can be collected and analyzed very fast in its natural settings. The results are reliable, can be quantified and are more objective compared to qualitative techniques (Queirós et al., 2017).

## 4.3 Methodological choice

Based on the research philosophy of this dissertation and the chosen research approach, quantitative research method (mono method) fits the best for an appropriate methodology for this dissertation because quantitative research is associated with positivism and deductive logic (Casula et al., 2021).

The data collection for this dissertation will be collected quantitatively to gather data from a large number of participants because it requires a sample with the ability to represent numerically larger in comparison to qualitative research (Yusuf Bilgin, 2017). This methodology allows accurate and reliable measurements which are necessary for a statistical analysis (Queirós et al., 2017). In this model, a higher amount of literature at the beginning of this dissertation (literature review) is used deductively as a conceptual framework for research hypothesizes compared to a qualitative approach (Creswell, 1994).

Quantitative research is testing hypotheses about relationships between different variables. The hypotheses of this dissertation (which are fed by theory) must be operationalized, i.e., translated into measurable dimensions. Afterwards, they can then be subjected to further mathematical analysis in the form of numbers to measuring, counting, or weighing of variables. The results then will be present in numerical values (Raithel, 2008).

Because of the quantitative research methodology, a single data collection method (questionnaire) will be used. Thus, a mono method quantitative study seems appropriate for this dissertation (Saunders, 2019).

## 4.4 Research strategy

Based on the study by Queirós et. Al., (2017), around 16 million of quantitative studies between 2007-2017 were considered. The distribution of these quantitative studies by quantitative research strategy shows that surveys and correlation studies are the most frequently used quantitative research strategies (Queirós et al., 2017; Walsh et al., 2011).

These results influenced the decision to use a survey for this dissertation because it allows to collect standardized primary data from respondents in a systematic way

(Laaksonen, 2018) which is important for the descriptive statistical data evaluation afterwards (Bourke et al., 2016).

The survey strategy in this dissertation will be conducted using a questionnaire. It is most frequently used for research questions like “who”, “what” or “where” which is the case for the research questions of this paper (Saunders, 2019). Because the research questions and objectives refer to the publics’ perception, this strategy enables a high representativeness which is one of the most important benefits (Queirós et al., 2017). Another reason to choose this strategy are several quantitative studies of corporate reputation were the measurement of corporate reputation based on survey-based data collection (Ponzi et al., 2011).

### 4.5 Time horizon

The research of this dissertation will be cross-sectional because the whole process is time constrained (12 weeks). This timeframe is given by the university. Thus, during this dissertation, data will be collected at one point in time, there is no dimension involved in this type of study (Kesmodel, 2018). Cross-sectional studies are often related to the survey strategy in the literature (Creswell, 1994). This is another reason why this type of study was chosen.

“A point in time” is usually not defined or described in literature (Kesmodel, 2018). In this dissertation, a point in time regarding data collection means from first of April 2023 until end of April (4 weeks).

### 4.6 Techniques and Sampling

The questionnaire as a tool for a survey strategy fits perfect to the chosen research strategy of this dissertation because each person responds to the same set of questions which provides an efficient way of collecting responses from a large sample (Buys and Oberholzer, 2023).

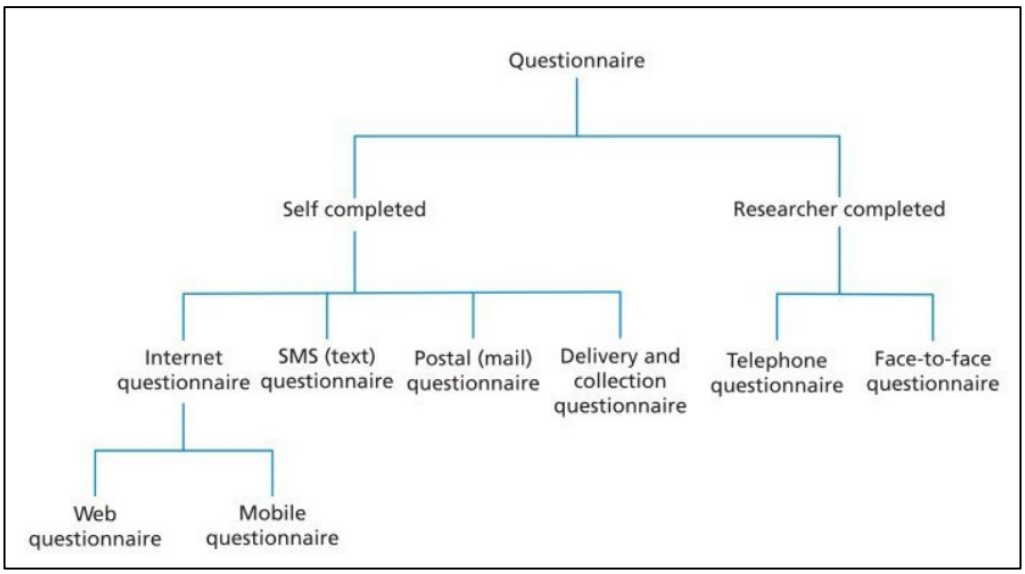


**Figure 5: Types of questionnaires (Saunders, 2019)**

Due to the time constraints imposed by the dissertation cycle, an internet-based questionnaire will be developed for this dissertation.

The following criteria are defined for the sample population for the questionnaire:

- Participants must be 18 years or older
- Participants should live in Germany
- Participants must accept the general conditions of the survey

The questionnaire is divided into 4 parts (see appendix 1). It is useful to structure the questions because less time is required for the respondent and makes it easier to answer as well as lower effort in the evaluation (Raithel, 2008). All questions are closed questions because it is easier to code afterwards.

- Part 1: Questions regarding corporate reputation in general (question 1-3)
- Part 2: Questions regarding corporate reputation of the pharmaceutical industry before Covid (question 4-9)
- Part 3: Questions regarding corporate reputation of the pharmaceutical industry after Covid (question 10-15)
- Part 4: Demographic questions (question 16-20)

Appendix 2 shows in detail which survey questions are linked to which research question and objective.

For justification, a four-item rating scales is used because it does not allow a "middle" indication and instead force a "positioning" from the participants because some relevant sociological literature, and psychological literature found out that there is a tendency towards the middle category (“Not-sure response”) in odd scales (Raithel, 2008).

The sample strategy is selected based on the snowball sampling, a non-probability sampling technique (Pace, 2021). This refers to strategic requests for “volunteers”; the use of informants that “snowball”; or “hand picking” respondents where existing respondents recruit future subjects from among their acquaintances. This handpicked sampling involves selecting cases that meet defined criteria (Sharma, 2017). It is not conceivable to do probability sampling because it is not possible to determine the probability for each unit in advance for this dissertation (Sallis et al., 2021).

Regarding the sampling, it is not possible to conduct data from every person in Germany who fits into the defined criteria of the questionnaire. This would be a census and is impossible. Thus, a sample is defined for this dissertation which means to collect data from a smaller part of the population (Sallis et al., 2021). The following digital sources will be used for this sampling method to share the questionnaire link:

- Mail distribution list of ISM Munich (university)
- LinkedIn account
- Social Media (Facebook, WhatsApp)
- Snowball-idea: participants sharing the link as well

This should make it possible to find as many participants as possible to have a result that is reliable at the end and to some degree, can be generalized to the overall population.

### 4.7 Error reduction

During the process of data gathering trough questionnaires and quantitative survey technique in general, different sources of error can occur. The main issues are:

- Validity: Does the survey measure what it was intended to (Flowerdew and Martin, 2013)?
- Reliability: Can the result be replicated (Flowerdew and Martin, 2013)?

To avoid systematic and random errors, the following points are important to mention in this dissertation:

- Precise question wording: Ensure that the questions are concise, and easy to understand. Avoid using complex language that may confuse respondents (Greenfield and Greener, 2016).
- Pilot testing: Before administering the survey to the target population, a pilot test with a small sample of participants will be done. It might help to identify any ambiguities/problems with the survey (Esposito, 2003).
- Minimize Response Bias: To minimize response bias, avoiding vague language, open questions (Greenfield and Greener, 2016).
- Analyzing data: Use appropriate statistical techniques and systems to analyze the survey data accurately (Tausendpfund, 2022).

- Non-response errors in questionnaire: Select and analyze only data from participants where the questionnaire was fully completed.

By implementing these points, reliability and validity might be enhance in this dissertation.

## 4.8 Data preparation for analysis

### 4.8.1 Using the right program

Based on the research paradigm and strategy, descriptive statistics will be used to analyze the collected data. For quantitative data analysis, several statistical programs are available. The best-known programs are certainly SPSS, Stata, and R.

All named programs cover the basic procedures of quantitative data analysis (Tausendpfund, 2022):

- Descriptive statistics (e.g., median, mean)
- Measures of correlation (e.g., Cramer's V, Spearman's Rho, Pearson's r)
- Advanced analysis procedures (e.g., linear, and logistic regression)
- Significance tests

For this dissertation, SPSS will be used because it is in general the most popular tool for statistical data analysis (Bühl, 2019).

### 4.8.2 Data preparation: Coding and statistics

For primary data analyses, it is important to recognize different types of data and understand the implications of different data types. Therefore, it is necessary to code data and create a data matrix by using SPSS. This process of coding is important to identify the most appropriate statistics to describe individual variables and to examine relationships between variables and trends in the collected data (Oehlrich, 2015).

“When preparing data for quantitative analysis you need to be clear about the:

- definition and selection of cases
- data type or types (scale of measurement)
- numerical codes used to classify data to ensure they will enable your research questions to be answered” (Saunders, 2019).

The following table shows the dimensions and variables from the conceptual framework which were coded to be able to use them in SPSS.

| General term | Dimension | Variables | Scale level |
|---|---|---|---|
| **Corporate Reputation** | **Knowledge** | V1: Personal Experience | Ordinal |
| | | V2: Word of mouth | Ordinal |

| | | | |
|---|---|---|---|
| | | V3: Mass Media | Ordinal |
| | | V4: Social Media | Ordinal |
| | | V5: Government | Ordinal |
| | | V6: Company | Ordinal |
| | **RQ** | V7: Media visibility and exposure | Ordinal |
| | | V8: Social responsiveness | Ordinal |
| | | V9: Quality of products | Ordinal |
| | | V10: Financial performance | Ordinal |
| | | V11: Industry | Ordinal |
| | | V12: Prior level of reputation | Ordinal |
| | **Unexpected events** | V13: Covid | Ordinal |
| | **Demographic** | V14: Gender | Nominal |
| | | V15: Age | Ordinal |
| | | V16: Level of education | Ordinal |
| | | V17: Status of employment | Ordinal |

**Table 16: Coding scheme variables conceptual framework**

Questions like “are these variables related?” or “do these groups differ?” are common questions for quantitative data analysis. In the statistical context these questions will be answered by assessing and testing the statistical significance and hypothesis (Goldenstein et al., 2018).

The question if there is a relationship between two variables can be answered by using descriptive bivariate statistics. The choice of suitable statistical procedures depends on the scale level of the variables (Ohlwein, 2022).

| | **Scale level** | | |
|---|---|---|---|
| | Nominal | Ordinal | Interval |
| **Crosstab** | + | + | + |
| **Spearman correlation** | - | + | - |
| **Pearson correlation** | - | - | + |

**Table 17: Statistical procedures for testing relationship between two variables (Ohlwein, 2022)**

Based on the defined research questions and objectives, the following statistical methods can be used in this dissertation to answer the research question:

- Chi-square test ($x^2$) to test whether two variables are independent or not (Saunders, 2019).
- Cramer's V to assess the strength of interrelation (McCormick et al., 2015).

By analyzing the coefficient, the strength of relationship between pairs of variables will be assess in this dissertation. Because of coding mistakes, type I or type II errors or missing data, the statistical methods for analyzing could change during the dissertation.

### 4.8.3 Data preparation: Hypothesizes

Because of the chosen methodology, it is necessary to establish hypothesizes for the research questions (Queirós et al., 2017). The following table shows the linkage between research question and hypothesizes.

| Research Question | General Hypothesizes (GH) |
|---|---|
| 1. What factors influence corporate reputation? | GH1: Based on the RQ, the most important variable is product/service quality. |
| 2. How does the public think about the pharmaceutical industry and why? What influences the public opinion? | GH2: The perception about the industry is more negative. It is influenced by prejudices and different level of knowledge. |
| 3. To what extent did the Covid pandemic and its coverage in terms of communication by the companies themselves and the media impact the corporate reputation of the pharmaceutical industry? | GH3: The Covid pandemic effects the public's perception about the pharmaceutical industry in a positive way. |
| 4. Do demographical variables affect the corporate reputation of the pharmaceutical industry by consideration the general public's perception? | GH4: There is a correlation between the selected demographic variables and the public's perception about the pharmaceutical industry. |

**Table 18: Research hypothesizes**

To be able to answer the GH in a meaningful way, it is necessary to break them down even further in the following chapter for better analysis of interrelations between individual variables.

## 4.9 Access and research ethics issues

Every researcher needs to be aware of issues associated with gaining access. Therefore it is necessary to know a range of strategies to help gaining access to the right organizations and/or individual participants, data, and other sources because it is a key

success factor for the development of the research paradigm (Saunders, 2019). Due to this reason, it is important to ensure that the questionnaire is distributed via a medium that addresses as many people as possible and has safety standards regarding data protection (Bourke et al., 2016).

To begin with, the survey tool "UmfrageOnline" was used to develop and distribute the web-based questionnaire. UmfrageOnline is operated by enuvo GmbH, a company based in Switzerland. The company has implemented appropriate technical, organizational, and administrative systems, policies, and additional procedures to help ensure the security, integrity, and confidentiality of data.

The collected data will be stored on the author's UmfrageOnline-account only for the period of the dissertation development. Only the author has access to this account. The access is secured by 2-factor authentication. After the dissertation is submitted on June 1, 2023, the account and thus the survey data will be deleted automatically. Afterwards, the data cannot be restored again. One set of data will be saved locally to use it for the SPSS analysis. After all statistics are done in SPSS, this local file will also be deleted.

This dissertation ensures to comply with all ethical considerations (anonymity of participants; confidentiality). Information will be gathered from participants in the questionnaire in line with the GDPR to make sure not to violate the integrity and privacy (Radley-Gardner et al., 2016). The collected data material will be used exclusively for the purpose of the study and will not be passed on. No participant will be forced to take part in the survey. Due to the anonymized data set, it is not possible to draw conclusion to the participants. No email address must be provided, nor any names or addresses to participate.

Because of the chosen research paradigm (positivism), this study may ignore individual experiences (Buys and Oberholzer, 2023). Additionally, the reliability of survey data is very dependent on the survey structure and the accuracy of answers provided by the respondents because the participants might misinterpret the questions or may not answer the questions honestly (Queirós et al., 2017).

It is inevitable to understand the need to act ethically and be able to anticipate ethical issues at each stage of the dissertation. Furthermore, principles of data protection and data management should be observed all times (Saunders, 2019).

# 5 Results, discussion, and recommendations

For this dissertation, a quantitative research design was used with a survey questionnaire to collect necessary data. The following sequences will summarize and discuss the findings based on a descriptive data evaluation (SPSS).

To begin with, data was gathered with a web-based survey questionnaire over four weeks from the beginning until the end of April 2023. In total, 346 people opened the questionnaire, 201 people filled it out completely, and 78 people did not finish the questionnaire. This results in a participation rate of 80.6% and a completion rate of 72.0%. It is important to notice that the following findings will be based on the data from the 201 participants who finished the questionnaire to avoid data errors.

All hypothesizes are tested in SPSS with a crosstab for bivariate variables. The null hypothesis (H0) always means “no interrelation between variables”. The counter-hypothesizes (H1-H12) are sorted by research question 1-4 in the following chapters below.

## 5.1 Discussion of findings: frequencies

### 5.1.1 Demographics

Demographic characteristics: The sample comprises 44.80% females (90 people in total, 54.70% males (110 in total), and 0.5% non-binary people (1 in total).

Most of the participants are between 25-34 years old (24.4%), followed by the age group 45-54 years (20.9%). The detailed distribution between all age groups can be taken from figure 6:

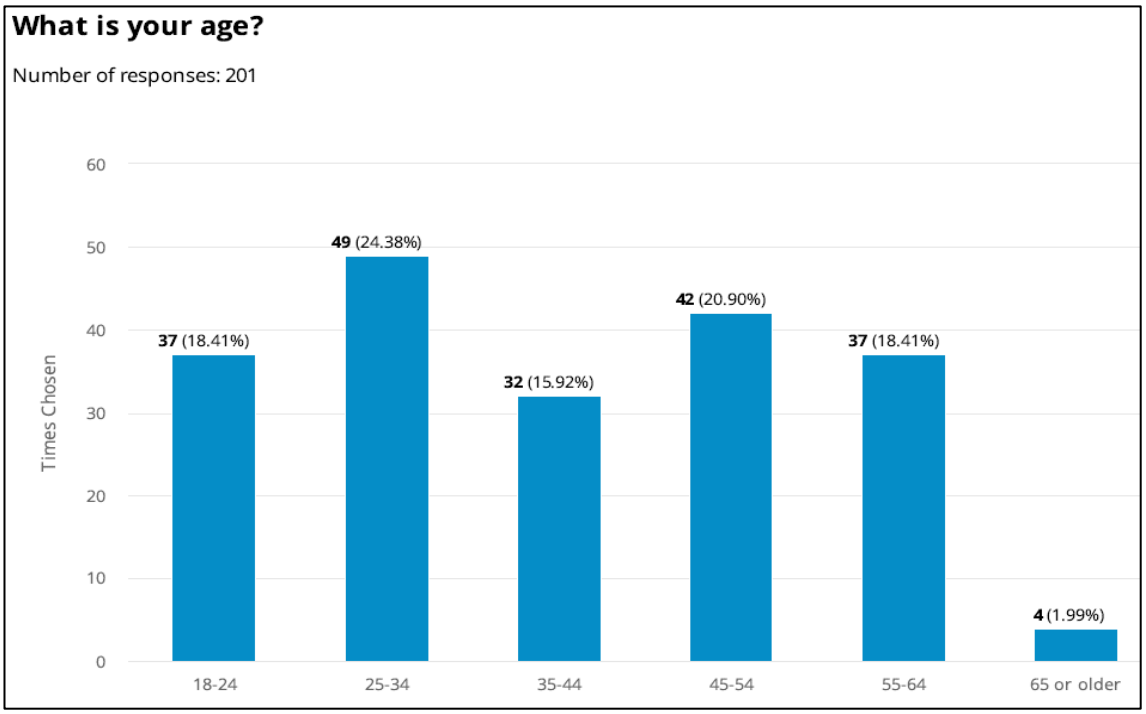


**Figure 6: Age distribution**

Regarding the education level, the most represented group are participants with a bachelor's degree (31.8%), followed by participants with a master's degree (30.3%). This shows that most of the attendants have an academic level of education. The detailed distribution between all levels of education can be taken from figure 7:

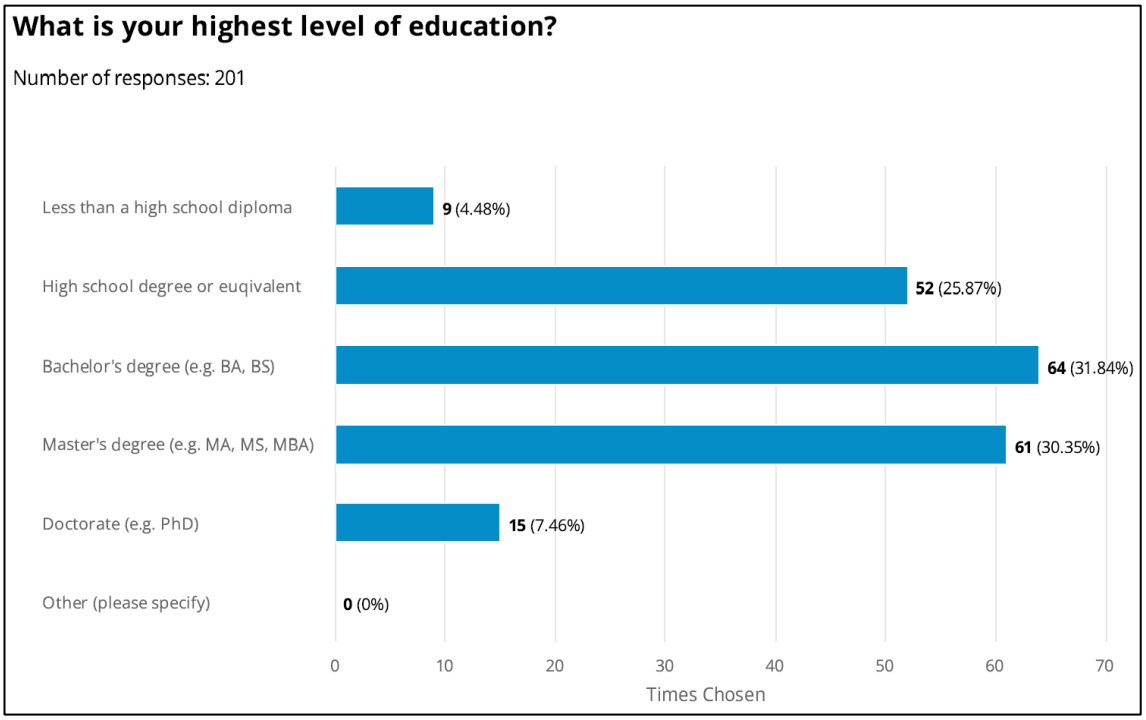


**Figure 7: Education level distribution**

Most of the participants are working full-time (42.8%) or part-time (28.9%). It can be concluded from this that the majority have already been integrated into the labor market. The detailed distribution between all status of employment can be taken from figure 8:

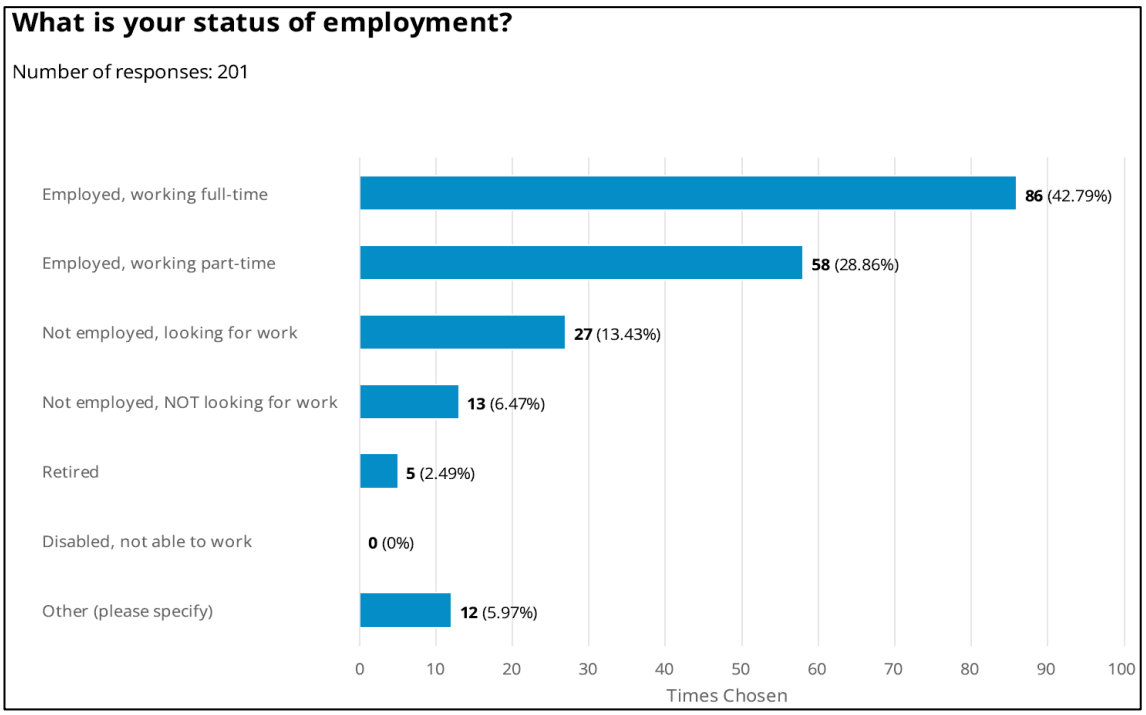


**Figure 8: Status of employment distribution**

### 5.1.2 Frequency of Corporate Reputation and its variables

To begin with, the most chosen definition of corporate reputation from the public's perception with 59.70% is the definition by Fombrun and Van Riel (1997). The detailed distribution of all definitions can be taken from figure 9:

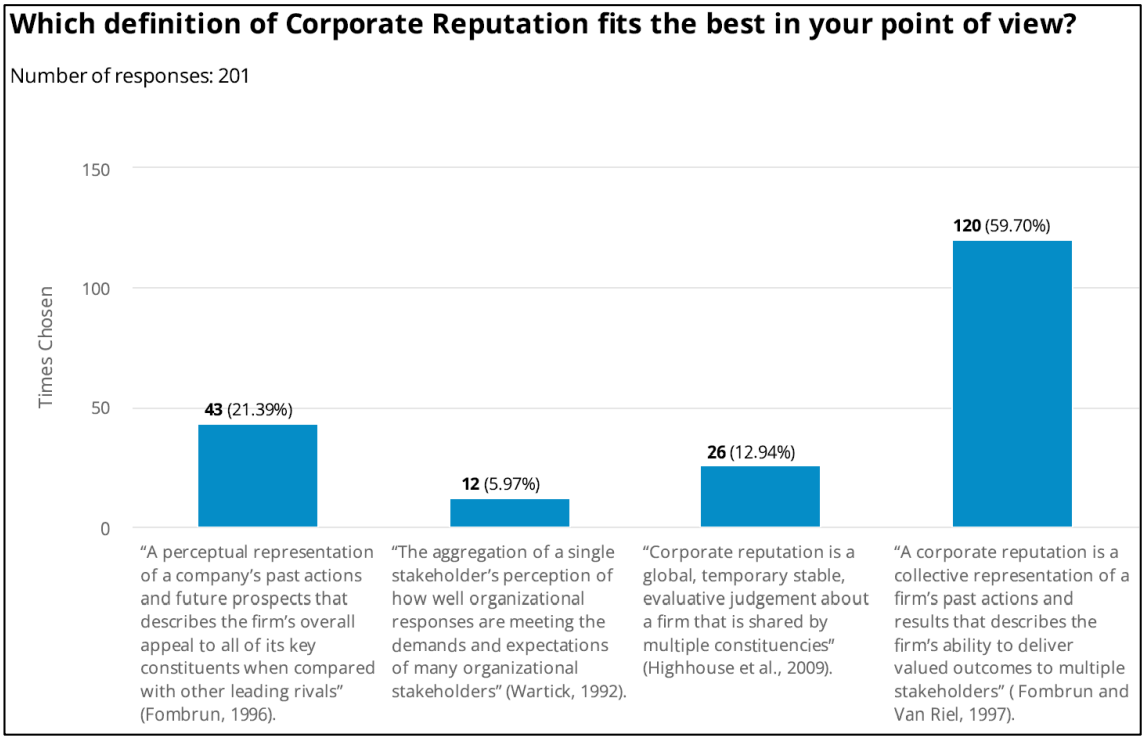


**Figure 9: Definition distribution**

It can be concluded that the findings are consistent with the existing literature. The literature review highlighted the role of Fombrun as one of the most important authors regarding the definition of reputation and its variables (Walker, 2010). The questionnaire results indicated that most of the participants (59.70%) believed that the definition of corporate reputation by of Fombrun and Van Riel (1997) fits the best. This core-definition of reputation is also highlighted in the systematic review of the corporate reputation literature by Kent Walker (2010).

From the public's point of view, the most important variables to measure corporate reputation are quality (26.20%) and social/environmental responsiveness (17.10%). Therefore, GH1 is true. The detailed distribution of all variables can be taken from figure 10:

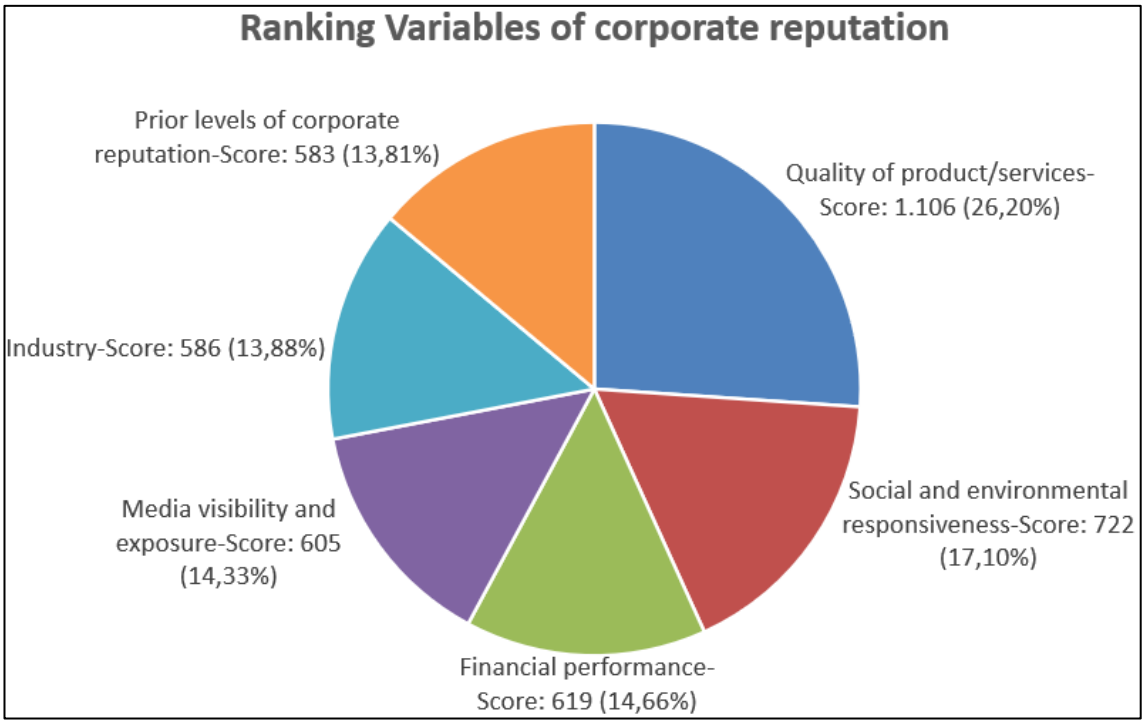


**Figure 10: Reputation variables distribution**

Most of the participants (25.14%) are using recommendations from friends or family (word of mouth) and their own experience (24.25%) as the main information resources to form a perception about a company. These results of the survey are equally consistent with the literature review because what we experience ourselves as well as what other people tell us based on their opinion (Helm et al., 2011) are one of the main sources of information based on the researchers' findings.

Figure 11 shows the detailed distribution of all information sources.

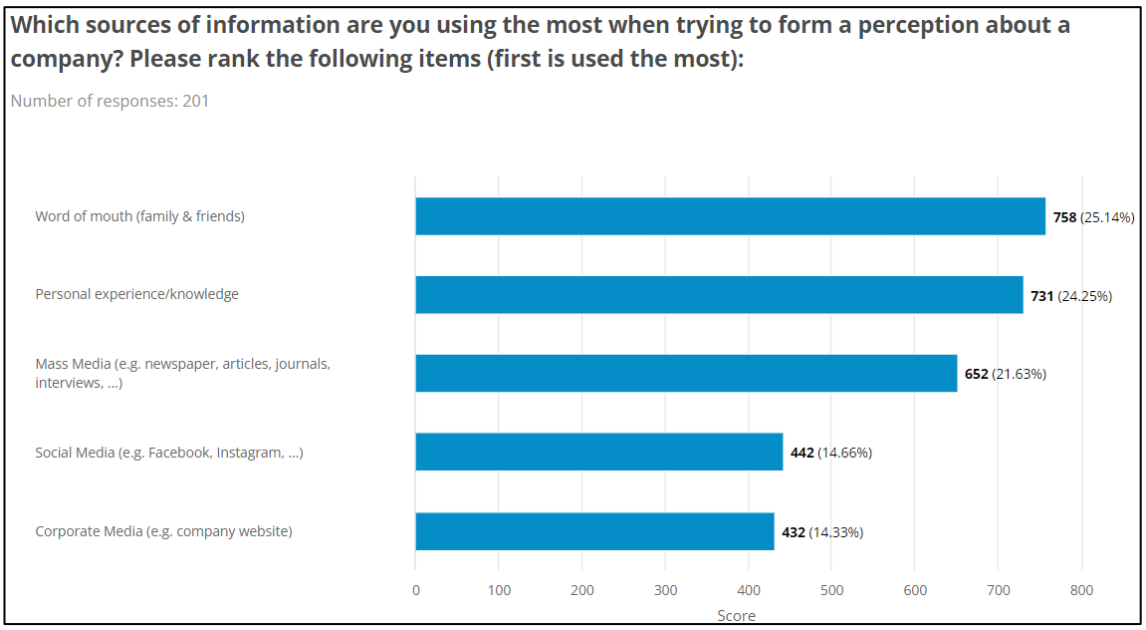


**Figure 11: Sources of information distribution**

### 5.1.3 Frequency of public's perception before Covid

To begin with, the participants were asked about their industry knowledge regarding the pharmaceutical market. Only 10% are very familiar with the industry (see figure 12).

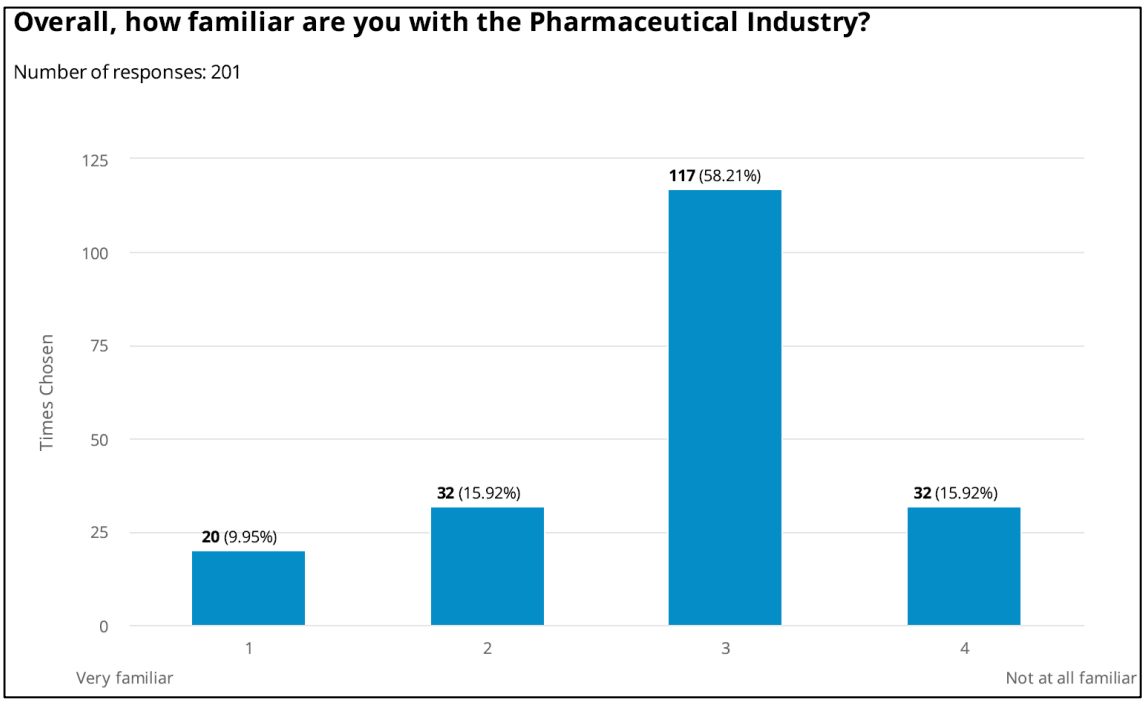


**Figure 12: Industry knowledge distribution**

Additionally, only 6.5% of the participants have a very positive perception about the pharmaceutical industry in Germany, while 57.7% have a negative perception. These results are comparable to the data from the literature review (Balog-Way et al., 2021; Parker,

2007), where it is mentioned that the pharmaceutical industry suffers from a reputation problem and does not have a good image within the population. Thus, GH2 is true as well.

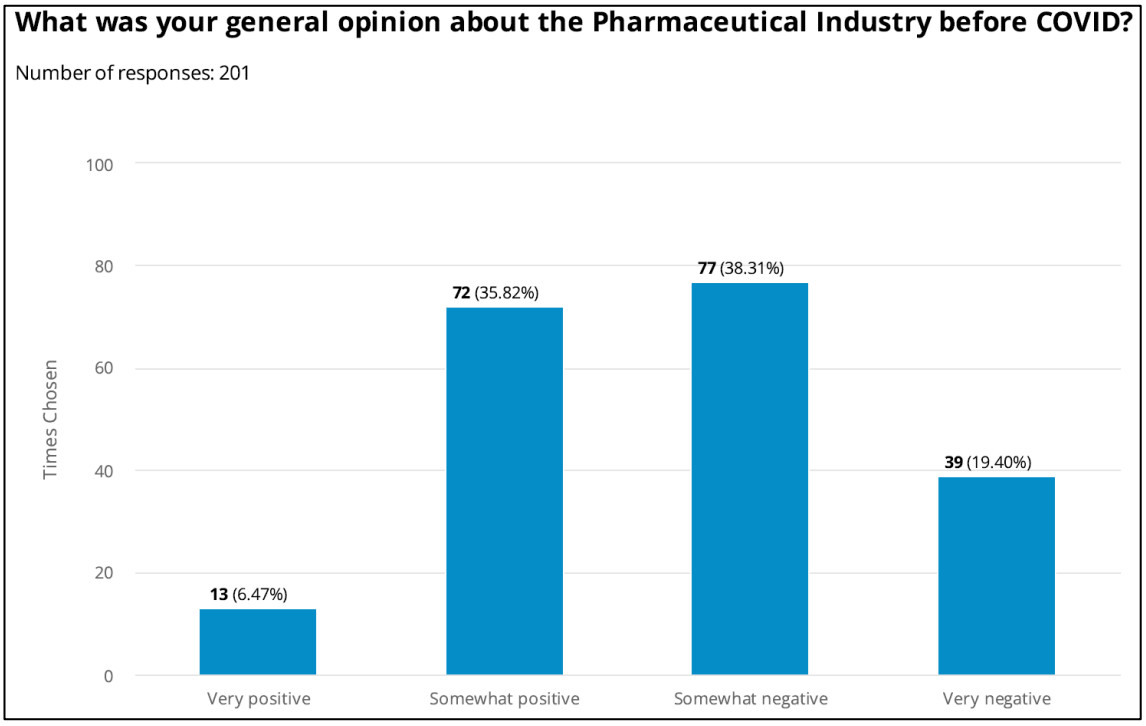


**Figure 13: Reputation before Covid**

To improve the reputation, better access to affordable medications (68.16%), higher transparency (67.16%) and more regulations to ensure ethical behavior (63.68%) are the most important initiatives from the public's perception (see figure 14).

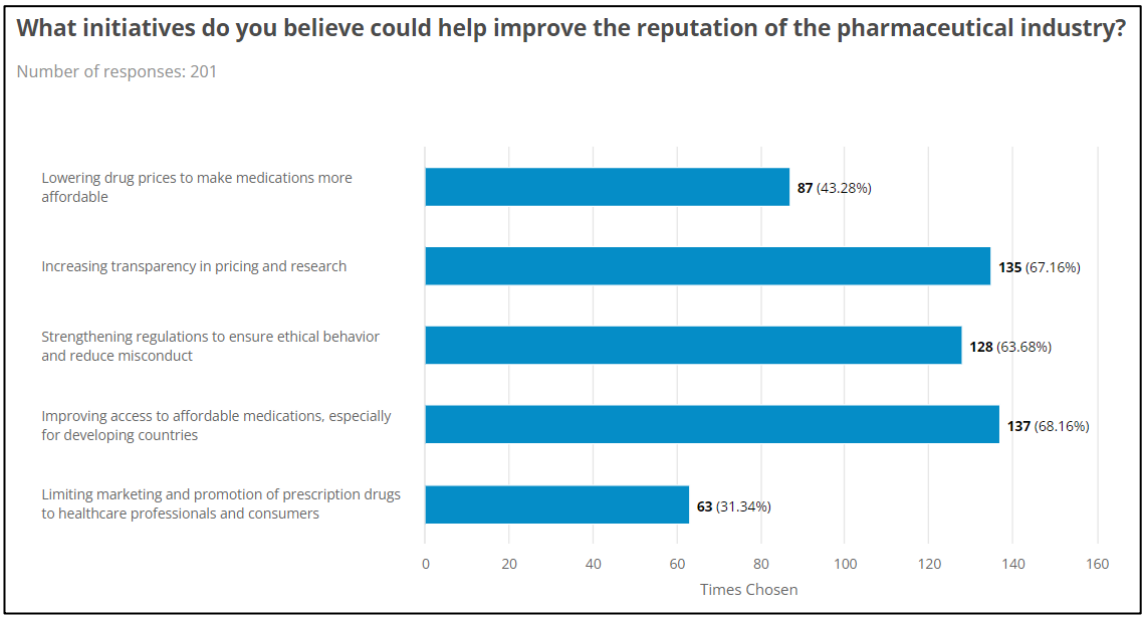


**Figure 14: Initiatives for better reputation distribution**

### 5.1.4 Frequency of public's perception after Covid

With the beginning of Covid, 76.1% of the participants changed their mind about pharma's reputation (figure 15). 62.1% of the attendees changed their perception in a positive way, while 14% of the attendees changed their perception in a negative way (figure 16). This means GH3 is true.

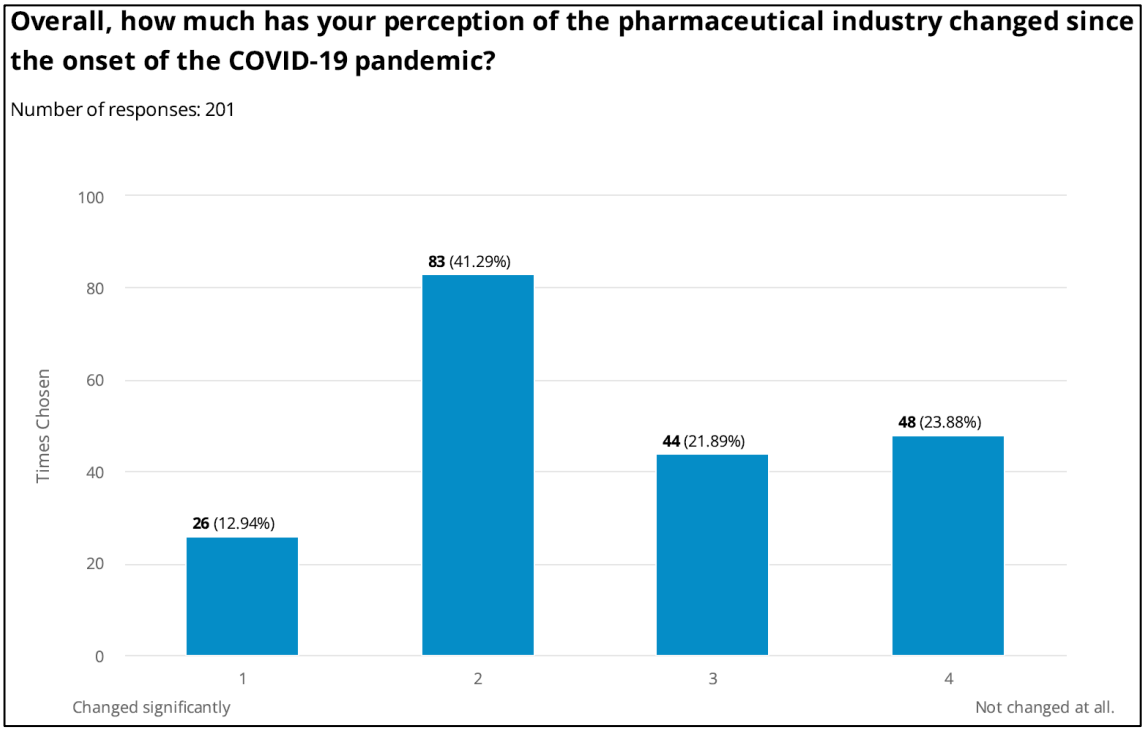


**Figure 15: Change of perception after Covid**

The tendency of the increasing reputation, which has already been indicated in the Ipsos Global Trustworthiness Monitor in 2021 ("Ipsos Global Trustworthiness Monitor: Is Trust in Crisis?," 2021), also seems to be reflected here in this questionnaire.

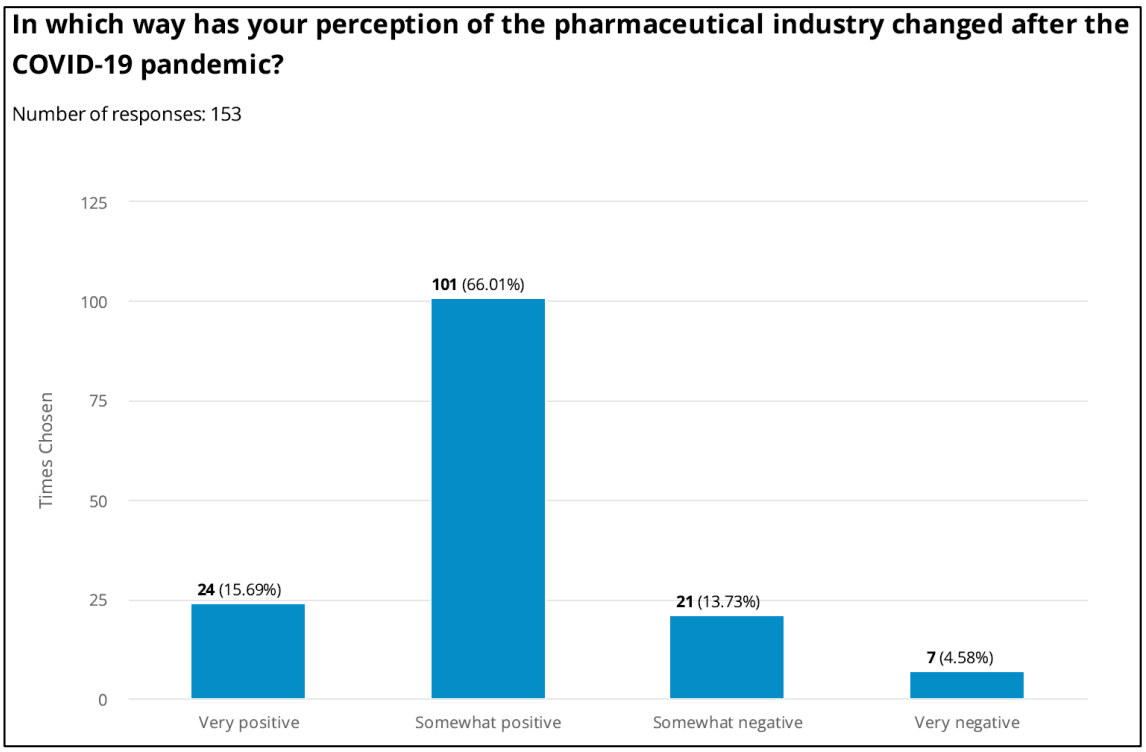


**Figure 16: Positive and negative change after Covid**

During Covid, most of the participants get informed about the industry by sources which are distributed by the Government (22.51%) and the mass media (21.16%). The detailed distribution of all variables can be taken from figure 17.

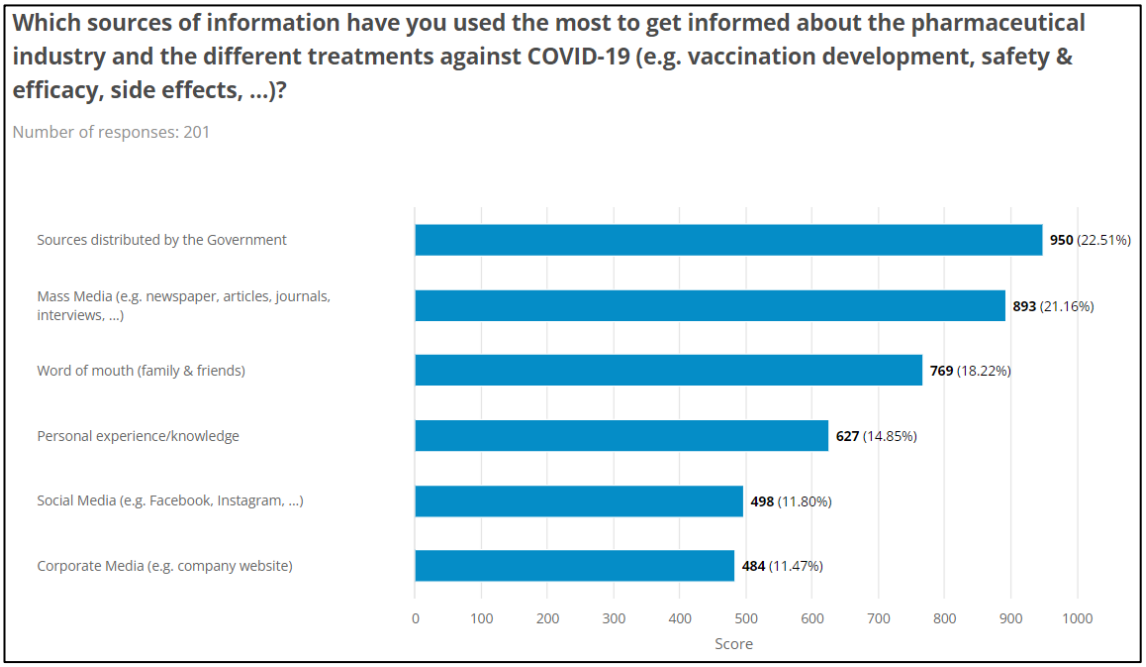


**Figure 17: Sources of information during Covid**

## 5.2 Findings research question 1

### 5.2.1 Discussion results research question 1

Research objective 1 was to understand the factors that build and form corporate reputation in the pharmaceutical industry.

- Research question 1: What factors influence corporate reputation?
- GH1: Based on the RQ, the most important variable is product/service quality

The following correlations between two variables will be analyzed to answer question 1:

- H1: Gender influences which sources of information are favored to form a reputation
- H2: Age influences which sources of information are favored to form a reputation
- H3: Level of education influences which sources of information are favored to form a reputation

The following table summarizes the testing results in SPSS. The detailed cross tables from SPSS are in Appendix 4.

| **Hypothesis** | **Chi-Square Test (asymptotic significance)** | **Symmetric measures** | **Results** |
|---|---|---|---|
| H1.1: Gender & Personal experience | 0,216 | Cramer's V: 0,164<br>Kendall's tau-b: 0,065 | Reject H1<br>Accept H0 |
| H1.2: Gender & Word of mouth | 0,168 | Cramer's V: 0,170<br>Kendall's tau-b: -0,134 | Reject H1<br>Accept H0 |
| H1.3: Gender & Corporate media | 0,232 | Cramer's V: 0,162<br>Kendall's tau-b: 0,067 | Reject H1<br>Accept H0 |
| H1.4: Gender & Mass Media | 0,223 | Cramer's V: 0,163<br>Kendall's tau-b: -0,131 | Reject H1<br>Accept H0 |
| H1.5: Gender & social media | 0,206 | Cramer's V: 0,165<br>Kendall's tau-b: 0,097 | Reject H1<br>Accept H0 |
| H2.1: Age & Personal experience | 0,002 | Kendall's tau-b: -0,001 | Reject H0<br>Accept H2 |
| H2.2: Age & Word of mouth | < 0,001 | Kendall's tau-b: -0,365 | Reject H0<br>Accept H2 |

| | | | |
|---|---|---|---|
| H2.3: Age & Corporate media | 0,005 | Kendall's tau-b: 0,164 | Reject H0<br>Accept H2 |
| H2.4: Age & Mass Media | 0,136 | Kendall's tau-b: -0,095 | Reject H2<br>Accept H0 |
| H2.5: Age & social media | < 0,001 | Kendall's tau-b: 0,267 | Reject H0<br>Accept H2 |
| H3.1: Education & Personal experience | 0,828 | Kendall's tau-b: 0,013 | Reject H3<br>Accept H0 |
| H3.2: Education & Word of mouth | 0,478 | Kendall's tau-b: -0,053 | Reject H3<br>Accept H0 |
| H3.3: Education & Corporate media | 0,614 | Kendall's tau-b: -0,016 | Reject H3<br>Accept H0 |
| H3.4: Education & Mass Media | 0,610 | Kendall's tau-b: -0,114 | Reject H3<br>Accept H0 |
| H3.5: Education & social media | < 0,001 | Kendall's tau-b: 0,203 | Reject H0<br>Accept H3 |

**Table 19: Summary of results cross table H1-H3**

One of the key findings from the questionnaire is that the quality of a product is considered the most important variable when measuring corporate reputation. Most of the participants indicated that they believe the quality of a company's products or services (26.20%) and social/environmental responsiveness (17.10%) are critical factors in shaping its reputation and overall success. This finding is consistent with existing research on the importance of product quality in building and maintaining a strong corporate reputation (FANG, 2005). The result of this questionnaire underscores the importance of having a business with social impact. This finding should be highlighted especially for the pharmaceutical industry because of all the related prejudices (Parker, 2007).

To answer whether the hypothesizes H1-H3 are true or not, crosstabs from SPSS are used to analyze. In general, variables are interrelated to each other if Chi-Square < 0,05. If this is not the case, H0 must be accepted (Sallis et al., 2021). Gender (H1), level of

education (H3.1-H3.4) do not influence the source of information with exception of education and social media (H3.5). The level of education and social media as source of information are interrelated. The higher the level of education, fewer social media is used to form a perception about a company. Finally, age also influences the source of information (H2.1-H2.3, H2.5), excepted mass media (H2.4). This source of information is used by all participants no matter how old they are. Younger participants prefer their personal knowledge as the main source of information (H2.1) while older participants prefer the word of mouth as source of information (H2.2). The younger the participants, the more often corporate websites and social media are used as source of information (H2.3 and H2.5).

### 5.2.2 Recommendations research question 1

These results and interrelations between age/gender/level of education and different sources of information are important to know for the pharmaceutical industry because based on the age/gender or level of education of target persons/customers, information should be provided on different information channels.

For example, the age group between 35-44 has the worst perception about the pharmaceutical industry before Covid. Based on the results of the survey, it appears that they use little to no social media as a source of information. Consequently, the industry needs to reach this age group through other types of media. Overall, word of mouth and personal experience are the most common sources for perception forming.

Different variables of corporate reputation are considered important or unimportant depending on age, gender, or level of education. The same applies to different sources of information to form a perception. How could the pharmaceutical industry use these survey results?

- Customize communication/marketing strategies: Communication strategies should be customized according to the preferences of different demographics. For instance, younger people might prefer social media channels while older people might prefer traditional media such as newspapers or TV news. Gender-specific communication strategies should also be considered, as men/women/non-binary may have different communication preferences. For example, a new marketing strategy like marketing 4.0 which combines digital marketing/communication as well as traditional communication trough newspaper could be a good way to get in touch with different age groups (Rahayu et al., 2018). Some ideas could be:
    - ➔ Social media campaign for younger generation to inform about the pharmaceutical industry
    - ➔ Printed flyers in doctors' offices or hospitals to address older people
    - ➔ Q&A on corporate websites to answer questions about general concerns (e.g., pricing, transparency, fair distribution)

- Know your stakeholders and the public perception: The industry should tailor their engagement strategies to meet the public's needs and expectations. Be transparent in communication, being honest about organization's performance, challenges, and goals (Morgan and Zane, 2022) and engage with the public as major stakeholder more effectively (Lee, 2022).

By considering the information preferences of different demographics, the pharmaceutical industry can build and maintain a positive corporate reputation, which can lead to increased trust, loyalty, and support from stakeholders (Dowling and Moran, 2012).

## 5.3 Findings research question 2

### 5.3.1 Discussion results research question 2

Research objective 2 is to examine the relationship between the public as stakeholders and their perception about the pharmaceutical industry.

- Research question 2: How does the public think about the pharmaceutical industry and why? What influences the public opinion?
- GH2: The perception about the industry is more negative. It is influenced by prejudices and different level of knowledge.

The following hypothesizes are tested to answer research question 2:

- H4: The level of knowledge about the industry depends on gender/age/education/status of employment.
- H5: The way how often people use medication influences their perception about the pharmaceutical industry.
- H6: The belief in prejudices influence the perception about the industry.

The following table summarizes the testing results in SPSS. The detailed cross tables from SPSS are in Appendix 5.

| **Hypothesis** | **Chi-Square Test (asymptotic significance)** | **Symmetric measures** | **Results** |
|---|---|---|---|
| H4.1: Gender & knowledge | 0,068 | Cramer's V: 0,171<br>Kendall's tau-b: -0,044 | Reject H5<br>Accept H0 |
| H4.2: Age & knowledge | 0,035 | Kendall's tau-b: -0,020 | Reject H0<br>Accept H5 |
| H4.3: Education & knowledge | 0,005 | Kendall's tau-b: -0,219 | Reject H0<br>Accept H5 |

| | | | |
|---|---|---|---|
| H4.4: Employment & knowledge | 0,547 | Kendall's tau-b: 0,054 | Reject H5<br>Accept H0 |
| H5: Medication & perception | < 0,001 | Kendall's tau-b: -0,143 | Reject H0<br>Accept H6 |
| H6.1: Bad Pharma & perception | < 0,001 | Kendall's tau-b: -0,527 | Reject H0<br>Accept H7 |
| H6.2: Saving lives & perception | < 0,001 | Kendall's tau-b: 0,437 | Reject H0<br>Accept H7 |
| H6.3: Lack of transparency & perception | < 0,001 | Kendall's tau-b: -0,398 | Reject H0<br>Accept H7 |
| H6.4: Affordability & perception | < 0,001 | Kendall's tau-b: -0,491 | Reject H0<br>Accept H7 |
| H6.5: Driver of innovation & perception | < 0,001 | Kendall's tau-b: 0,451 | Reject H0<br>Accept H7 |
| H6.6: Trust & perception | < 0,001 | Kendall's tau-b: -0,477 | Reject H0<br>Accept H7 |

**Table 20: Summary of results cross table H4-H6**

To begin with, gender (H4.1) and status of employment (H4.4) have no influence in terms of how familiar the participants are with the pharmaceutical industry. On the contrary, age (H4.2) and education (H4.3) have an interrelation with the people's knowledge about the industry. The more educated the attendants are, the more familiar they are with the pharmaceutical industry.

Based on the SPSS-results, H5 is true and suggests that the way how often people use medication influences their perception about the pharmaceutical industry. Kendall's tau-b implicates that individuals who try to avoid medications are more likely to have a negative opinion about the industry. 45.59% of those who try to avoid medications agreed that the pharmaceutical companies have faced criticism and challenges in terms of trust.

Also, H6.1-H6.5 are true. The belief in prejudices influence the perception about the industry. The participants who have a very positive perception about the industry disagree with all main prejudices and see the industry as lifesavers and significant driver of

innovations. On the other hand, 116 people (57.71%) have a negative/very negative perception about the companies and agree with the prejudices in the questionnaire.

### 5.3.2 Recommendations research question 2

The survey shows that the participants have a bad perception about the pharmaceutical industry (57.7%) in Germany before Covid, characterized by prejudices and lack of knowledge. Thus, what has been written in the literature about the bad reputation of the pharmaceutical industry applies in this dissertation as well (Parker, 2007)(Balog-Way et al., 2021). How could the pharmaceutical industry use these survey results to maintain a more positive reputation?

- Invest in educational campaigns: The pharmaceutical industry should invest in educational campaigns to inform the public about the industry's role in developing life-saving medications. These campaigns should focus on the benefits of medications, the research and development process, clinical trials, and drug pricing for example to give arguments against the existing prejudices.
- Provide accurate information: The industry should ensure that all information provided to the public is accurate and up to date. Another important factor regarding the provision information is to make sure that the whole public can understand these facts, not only those people with a higher education. It is about exceeding the public's expectation about the industry (Lee, 2022).
- Collaborations with social institutions: The pharmaceutical industry can support community organizations by providing funding, resources, and expertise. This would help community organizations provide health education, outreach, and support to underserved communities and get in touch with the public. This might have a positive effect on the publics' perception because ethical behavior was mentioned as one of the most important variables regarding corporate reputation.

Additionally, the participants mentioned the following initiatives which could help to improve the reputation of the pharmaceutical industry:

- Improving access to affordable medications, especially for developing countries (Shaw and Whitney, 2016).
- Increasing transparency in pricing and research (Valverde, 2012).
- Strengthening regulations to ensure ethical behavior and reduce misconduct (Van den Bogaert et al., 2018).

With those recommendations, the pharmaceutical industry can demonstrate their commitment to improve their own reputation by building trust and sharing information to fight against all the prejudices.

## 5.4 Findings research question 3

### 5.4.1 Discussion results research question 3

The research objective 3 is to investigate the impact of a worldwide Crisis like Covid on corporate reputation in the pharmaceutical industry in Germany.

- Research question 3: To what extent did the Covid pandemic and its coverage in terms of communication by the companies themselves and the media impact the corporate reputation of the pharmaceutical industry?
- GH3: The Covid pandemic effects the public's perception about the pharmaceutical industry in a positive way.

The following hypothesizes are tested to answer research question 3:

- H7: Gender/age/education influence whether the perception about the pharmaceutical industry changed after Covid or not.
- H8: The degree of safety depends on the perception about the industry after Covid influence.
- H9: The statement of transparency depends on the perception about the industry after Covid.
- H10: The public's perception after Covid depends on the selected source of information.

The following table summarizes the testing results in SPSS. The detailed cross tables from SPSS are in Appendix 6.

| **Hypothesis** | **Chi-Square Test (asymptotic significance)** | **Symmetric measures** | **Results** |
|---|---|---|---|
| H7.1: Gender & likelihood of change | 0,288 | Cramer's V: 0,135<br>Kendall's tau-b: -0,099 | Reject H8<br>Accept H0 |
| H7.2: Age & likelihood of change | 0,008 | Kendall's tau-b: 0,080 | Reject H0<br>Accept H8 |
| H7.3: Education & likelihood of change | 0,259 | Kendall's tau-b: -0,109 | Reject H8<br>Accept H0 |
| H8: Safety & perception after Covid | < 0,001 | Kendall's tau-b: 0,559 | Reject H0<br>Accept H9 |

| | | | |
|---|---|---|---|
| H9: Transparency & perception after Covid | < 0,001 | Kendall's tau-b: 0,409 | Reject H0<br>Accept H10 |
| H10.1: Perception after Covid & Personal experience | 0,036 | Kendall's tau-b: -0,087 | Reject H0<br>Accept H11 |
| H10.2: Perception after Covid & Word of mouth | 0,653 | Kendall's tau-b: 0,061 | Reject H11<br>Accept H0 |
| H10.3: Perception after Covid & Corporate media | 0,400 | Kendall's tau-b: -0,020 | Reject H11<br>Accept H0 |
| H10.4: Perception after Covid & Mass Media | 0,639 | Kendall's tau-b: -0,045 | Reject H11<br>Accept H0 |
| H10.5: Perception after Covid & social media | 0,015 | Kendall's tau-b: -0,159 | Reject H0<br>Accept H11 |
| H10.6: Perception after Covid & Government | < 0,001 | Kendall's tau-b: 0,172 | Reject H0<br>Accept H11 |

**Table 21: Summary of results cross table H7-H10**

In the first place, gender (H7.1) and level of education (H7.3) have no interrelation whether the perception about the pharmaceutical industry changed after Covid or not. Only the age as a demographic variable has an interrelation (H7.2). The older the survey participants, the fewer participants changed their minds.

To continue, 126 participants feel confident regarding safety and efficacy of COVID-19 medicines. The result of H8 shows an interrelation between the safety-feeling and the perception about the industry after Covid. 90.47% of the people who trust in the safety and efficacy of COVID-19 medicines changed their perception in a positive way after Covid. Also, participants who believe the industry has been very transparent in sharing information during Covid, have a more positive perception about the industry, thus H9 is true as well.

Besides, word of mouth (H10.2), corporate media (H10.3), and mass media (H10.4) have no interrelation with the perception after Covid. In Contrast, personal experience & perception after Covid (H10.1), social media & perception after Covid (H10.5) as well as sources distributed by government & perception after Covid (H10.6) are interrelated.

The more positive the perception after Covid is the less personal experience and social media were used as a source of information. This suggests that respondents who relied less on personal experience and social media as sources of information during the pandemic tended to have a more positive perception of the pharmaceutical industry afterwards.

The interrelation between reputation/perception and social media fits to the literature review because a lot of misleading information are distributed via social media (Vogler and Eisenegger, 2021). Especially during Covid, there was an increasing number of misleading information (Di Domenico et al., 2022).

People who prefer sources which are distributed by the Government have a very positive perception after Covid about the industry. This suggests that individuals who rely on government sources of information during times of crisis, such as a pandemic, may have more trust in the government's ability to effectively respond and manage such a situation.

### 5.4.2 Recommendations research question 3

During Covid, 62.1% of the attendees changed their perception in a positive way. The development, distribution, and knowledge sharing of COVID-19 vaccines by pharmaceutical companies may have helped to improve public perception about the industry (Correia Borges et al., 2022). People may have been particularly impressed by the speed and effectiveness of the COVID-19 vaccine development process. This could have led to a more positive view of the industry overall, as well as increased trust in the ability of pharmaceutical companies to address public health challenges.

The way how the public’s perception during Covid changed depends on the selected source of information. But what does that mean for the pharmaceutical industry? It is important to use this positive trend in long-term:

- Maintain transparency: The public has responded positively to transparency during the pandemic, so it's important for the pharmaceutical industry to continue providing accurate and transparent information about their products, research, and development in long term. Maybe not only during Covid.
- Focus on education: The public's positive perception during Covid may base on the increased understanding of scientific concepts. The pharmaceutical industry should focus on educating the public about their products, research, and development to increase understanding and reduce misinformation.
- Continue using communication channels: The public received information from different sources during Covid (e.g., Government, news), so the pharmaceutical

industry should use diverse communication channels to reach a wider audience in future as well.

Overall, the pharmaceutical industry should continue to prioritize transparency, ethics, and responsibility to maintain the positive trend of a better reputation. But on the other hand, the positive shift in perception may be temporary and subject to change depending on future developments in the industry. It is too early to answer whether it is a short-term positive way of change or a long-term phenomenon.

## 5.5 Findings research question 4

### 5.5.1 discussion results research question 4

Research objective 4 is to analyze the relationship between demographical variables and public's perception about the pharmaceutical industry.

- Research question 4: Do demographical variables affect the corporate reputation of the pharmaceutical industry by consideration the general public's perception?
- GH4: There is an interrelation between the selected demographic variables and the public's perception about the pharmaceutical industry.

The following interrelation between two variables will be analyzed to answer research question 4:

- H11: Gender/age/education influence public's perception about the pharmaceutical industry before Covid
- H12: Gender/age/education influence public's perception about the pharmaceutical industry after Covid

The following table summarizes the testing results in SPSS. The detailed cross tables from SPSS are in Appendix 7.

| **Hypothesis** | **Chi-Square Test (asymptotic significance)** | **Symmetric measures** | **Results** |
|---|---|---|---|
| H11.1: Gender & perception before Covid | < 0,001 | Cramer's V: 0,261<br>Kendall's tau-b: 0,006 | Reject H0<br>Accept H12 |
| H11.2: Age & perception before Covid | < 0,001 | Kendall's tau-b: 0,184 | Reject H0<br>Accept H12 |
| H11.3: Education & perception before Covid | 0,011 | Kendall's tau-b: -0,054 | Reject H0<br>Accept H12 |

| | | | |
|---|---|---|---|
| H12.1: Gender & perception after Covid | 0,005 | Cramer's V: 0,290<br>Kendall's tau-b: -0,265 | Reject H0<br>Accept H13 |
| H12.2: Age & perception after Covid | 0,030 | Kendall's tau-b: -0,258 | Reject H0<br>Accept H13 |
| H12.3: Education & perception after Covid | 0,112 | Kendall's tau-b: -0,214 | Reject H13<br>Accept H0 |

**Table 22: Summary of results cross table H11-H12**

To begin with, the chosen variables in H11.1-H11.3 are interrelated. Thus, gender influences the perception about the pharmaceutical industry before Covid. Based on the results, men have a more negative opinion about the industry before Covid (63.64%) compared to women (51.11%). Reason could be some psychological facts in the way how men and women think/behave or feel but further research will be needed to confirm these findings and understand the underlying reasons for the differences in perception between men and women.

Also, the younger the participants are, the more positive is their perception about the industry (H11.2). While 61.63% of all attendants between 18-34 years have a positive perception, only 27.83% of all attendants between 35-65 or older have a positive perception. These results may have implications for the industry in terms of how to communicates with different age groups and how the industry can address the concerns of older individuals who have a less positive perception about the industry.

An additional factor which could influences the perception before Covid is the level of education but only with a very weak interrelation. Based on the crosstab, people with a level of education less than high school diploma (60.66%) and people with a high level of education, for example PhD (60.00%) have a very negative perception about the industry. Participants with a bachelor's degree have a more positive perception (48.44%). This finding is not easy to interpret because the interrelation between both variables is very weakly. However, one possible explanation is that people with lower levels of education may have limited exposure to the industry, which can lead to a negative perception of the industry due to misinformation or lack of understanding. In contrast, people with higher levels of education may have greater exposure to the industry and its complexities and may be more critical of the industry due to their broader knowledge and understanding of social, economic, and environmental issues. They may have a more developed

sense of social responsibility and ethical considerations, which can lead them to question the practices of certain industries.

Compared to the situation after Covid, demographical variables have also an interrelation with the public's perception except level of education (H12.3). Gender (H12.1) and age (H12.2) influence the public's perception after Covid. In contrast to H11.1, more men changed their perception about the industry in a positive way (90.79%) while 30.31% of the female attendants changed their perception about the pharmaceutical industry in a more negative way after Covid. It may be possible that gender biases or stereotypes played a role in shaping perceptions about the pharmaceutical industry after Covid. For example, men may have been more likely to view the industry as important for public health, while women may have been more critical of its potential impact on societal inequalities. Additionally, men and women may have had different prior beliefs about the industry which may influenced how they think about the changes brought by Covid. For example, men may have been more optimistic about the potential for new treatments and vaccines, while women may have been more skeptical.

Compared to H11.2, the younger the participants are, the more positive is their perception about the industry after Covid (H12.2).

### 5.5.2 Recommendations research question 4

Based on the findings of the dissertation, the perception of the pharmaceutical industry is closely related to demographic variables and people's perception about the industry before and after Covid-19. These insights provide a valuable opportunity for the industry to improve its reputation and strengthen its relationship with the public.

- Addressing the specific concerns and needs of different demographic groups: For example, the industry could develop targeted outreach programs to address the concerns of specific groups, such as older adults or minority populations. By understanding the unique needs and perspectives of different groups, the industry can improve its reputation and build stronger relationships with these communities.
- Understand in which way or to which degree gender biases or stereotypes played a role in shaping perceptions about the pharmaceutical industry after Covid. It could help to understand why men have a more positive perception and why women are more skeptical.
- Using information for specific marketing campaigns to address the right message in the way which fits the best for each age group/knowledge level or gender.

This can also help the industry build stronger relationships with the public based in demographic understandings and improve its reputation in the broader healthcare community.

## 5.6 Comparison results, framework and hypothesizes

Many hypotheses have been made and rejected during this dissertation. To be able to summarize these hypothesizes little more clearly, the conceptual framework in the following figure will help to see the big picture.

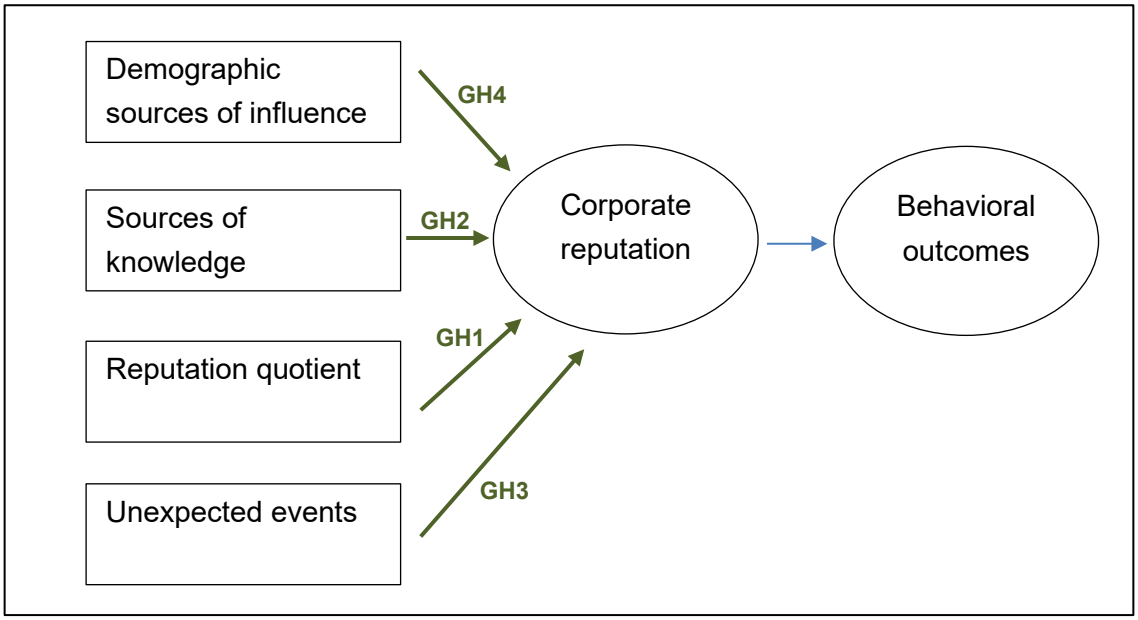


**Figure 18: Conceptual framework & hypothesizes**

As described in chapter 3 (page 27), the conceptual framework is divided into four dimensions. Each dimension has their related variables and represent one of the GH.

| Dimension | General hypothesis | Results |
|---|---|---|
| Reputation quotient | GH1: Based on the RQ, the most important variable is product/service quality. | Yes, most participants agree with this statement. |
| Sources of knowledge | GH2: The perception about the industry is more negative. It is influenced by prejudices and different sources of knowledge. | Yes, frequency testing confirms the negative perception in general which is interrelated with prejudices and sources of knowledge. |
| Unexpected events | GH3: The Covid pandemic effects the public's perception about the pharmaceutical industry in a positive way. | Yes, Covid influenced the public's perception in a positive way. |
| Demographic source of influence | GH4: There is a correlation between the selected demographic variables and the public's perception about the pharmaceutical industry. | Yes, most of the defined variables (but not all) interrelated to public's perception about the industry. |

**Table 23: Framework dimensions and results**

According to the findings from the survey, most of the hypotheses are true and have been confirmed by interrelations between variables. However, there are some exceptions because not all chosen variables are interrelated and thus, some hypotheses had to be rejected.

It is worth noting that the survey results only confirm the hypotheses that were tested, and there may be other factors or variables that were not included in the dissertation. Therefore, the results should not be considered full evidence for all possible scenarios.

Overall, the survey results provide valuable insights into the relationship between variables related to corporate reputation and the pharmaceutical industry. Without discussion, further research is necessary to fully understand the complex nature of these interrelation and to explore other potential factors that may influence the outcomes.

## 5.7 Limitations

To begin with, each dissertation has limitations associated with different topics. These limitations can impact the quality and validity of the data collected, as well as the overall results of the research. Therefore, it is important to mention the limitations of each dissertation to ensure that the results obtained are reliable and accurate (Sallis et al., 2021).

First, because many different definitions of corporate research exist (Walker, 2010), the most common definition in the literature review was chosen for this dissertation. Nevertheless, corporate reputation may have different dimensions depending on the individual background of each company, which makes it hard to find one comprehensive and well-accepted definition. Furthermore, reputation depends also on the different perception of stakeholder-groups (Walker, 2010). A single definition does not capture all aspects of a topic, leading to an incomplete understanding of it. This dissertation only analyzed the reputation based on the public's perception. The reputation based on the perception of industry experts for example may be different. It is important to recognize that corporate reputation has multiple definitions and perspectives, but to find a common understanding, it is necessary to pick one definition as the main definition.

Furthermore, regarding the biggest challenges and how to overcome negative societal perception about the industry (Morgan and Zane, 2022), a mixed method with a survey questionnaire and expert interviews would create a better result related key-market issues because of the knowledge and insights of experts.

The following limitations are associated with the chosen survey strategy of this dissertation:

- The questionnaire of this dissertation may not capture all aspects of the research topic. This can lead to missing important information that could have been obtained through other research methods like mixed methods.

- The questionnaire may only reach a few people because it was distributed online. People without internet access or the knowledge how to do it online cannot participate even if they are interested in the topic.
- Respondents may not be completely truthful in their answers or may not fully understand the questions, which can influence the results.
- Incomplete data and missing information because some of the respondents did not answer all the questions can affect the results as well.
- Language barriers: The questionnaire is in English, but target-attendants are from Germany. If the questionnaire is not available in the respondent's native language, this can create language barriers and limit the number of respondents who can participate.

By analyzing the survey results, the following limitations are important to mention:

- This survey is conducted on a sample of the population (defined by the researcher) rather than the entire population (which is not possible). Thus, the results do not represent the broader population of different nations for example which can lead to unrepresentative findings.
- There could be measurement errors, such as poorly defined response options, or technical issues with SPSS itself. These errors can cause inaccuracies.
- Generalizability: This survey provides valuable insights into the reputation of the pharmaceutical industry, but it is important to recognize that the findings may not be universally applicable. The results from the survey may differ from other populations, countries and therefore limiting the generalizability of the results. Additionally, there is always a discussion how many participants are necessary for talking about reliable results.
- Weak interrelations between variables could reduce the explanatory power of a model. When variables have weak associations, it might become challenging to establish a strong cause-and-effect relationship based on the available data.
- No weighting factor was calculated for gender for example which influenced the results.

Those mentioned limitations should keep in the readers mind while reading this dissertation.

# 6 Conclusion

The final chapter of this dissertation first addresses findings which implies further research and highlighted the main points of this dissertation once again.

## 6.1 Further Research

One result was that depending on level of education, different sources of information were chosen to get informed about the industry, even during Covid. Further research should address on the detailed interaction between the media as third party (source of information) and the pharmaceutical industry. This idea of further research could also be linked with the information asymmetry which exists between industry and the public (Morgan and Zane, 2022). A further research question could be like:

- What technology and/or processes can enhance the way in which the public, and pharmaceutical companies create, store, and disseminate information about pharmaceutical products and therapies (Morgan and Zane, 2022)?

Further research could be also interesting if the change to a more positive reputation because of Covid was only a short-term effect or a change which might hold on for the next years and is therefore more sustainable for the industry. Additionally, research regarding different approaches how to increase the reputation and especially transparency could be also very interesting, also in the context of involving CSR because participants of the survey mentioned that social responsibility is one of the most important variables regarding corporate reputation. A further research question could be like:

- Are marketers accurate in believing that COVID-19 can be leveraged to fuel an innovation-first reputation for pharmaceutical companies (Morgan and Zane, 2022)?

Participants of the survey also suggests that higher regulations would be an initiative to improve the reputation, but the legal and regulatory restrictions are very complex. To address this initiative, detailed research is necessary to understand all the regulations depending on the country and how they interrelate to each other (Morgan and Zane, 2022). A further research question could be like:

- Might have an additional prescreening of products by organizations like EMA or FDA a positive effect on corporate reputation of the pharmaceutical industry?

Further research could also be interesting by analyzing the role of emerging technologies/trends like using influencers on social media platforms to create trustworthy connections, especially for younger generations which are using social media more often compared to older generations (see survey results). A further research question could be like:

- What role can social media (“influencer marketing”) and other emerging technologies play in pharmaceutical marketing (Morgan and Zane, 2022)?

## 6.2 Broader conclusion

In conclusion, corporate reputation plays a vital role in the pharmaceutical industry (Van den Bogaert et al., 2018). Thus, a detailed literature review of corporate reputation and the reputation of pharmaceutical industry is important to understand the complexity and the variables, which influence reputation.

Based on the literature review, the following definition of reputation was chosen: “A relatively stable, issue specific aggregate perceptual representation of a company’s past actions and future prospects compared against some standard” (Walker, 2010). A positive corporate reputation is crucial for any business to succeed in today's competitive market (Dowling and Moran, 2012) and can result in greater customer loyalty as well as financial benefits, such as higher premium prices and lower costs (Fombrun and Shanley, 1990). The RQ by Fombrun et al. (2000) is one of the most common used measures for corporate reputation and accepted by a lot of researchers. It is important to note that measuring corporate reputation is an ongoing process.

The pharmaceutical industry plays a critical role in public health by researching, developing, and manufacturing drugs and medical devices. As such, the industry's reputation is crucial in maintaining the trust of stakeholders (Burke et al., 2011). The negative reputation of the industry is characterized by the following statements:

- greed for profit (DEANGELIS, 2016)
- lobbying and market power (Molé, 2005)
- lack of transparency/trust (fraud) (Shaw and Whitney, 2016; Valverde, 2012)
- lack of regulation (Van den Bogaert et al., 2018)
- ethics and compliance (Shaw and Whitney, 2016)

With the beginning of the COVID-19 pandemic, the public’s perception about the pharmaceutical industry seems to be changing (Thomas, 2020). Based on the Ipsos Global Trustworthiness Monitor in 2021, the trustworthiness of the pharmaceutical industry increased from 25% in 2018 up to 31% in 2021 (“Ipsos Global Trustworthiness Monitor: Is Trust in Crisis?,” 2021).

Research objective 1 is to understand the factors that built corporate reputation in the pharmaceutical industry. Based on the research results, quality of products and social and environmental responsiveness are the most important variables. Additionally, public’s perception is mainly influenced by word of mouth, personal experience, and information from mass media like newspaper or articles. Highlighting especially social responsiveness because that is one of the reasons why the reputation is so bad. Strengthening regulations to ensure ethical/social behavior is also mentioned by the participants as one of the most important initiatives to improve the reputation of the pharmaceutical industry.

Research objective 2 is to examine how the public’s perception influence corporate reputation. Based on the detailed results, whether participants have a positive or more

negative perception about the industry depend on level of knowledge and belief of prejudices. Investing in educational campaigns could be a way to improve the knowledge of the public about the industry and to inform the public about the industry's role in developing life-saving medications to give arguments against the existing prejudices.

Research objective 3 is to investigate the impact of Covid on corporate reputation of the pharmaceutical industry. The survey results show that the attendees changed their perception in a positive way. The development, distribution, and knowledge sharing of COVID-19 vaccines by pharmaceutical companies may have helped to improve public perception about the industry (Correia Borges et al., 2022). People may have been particularly impressed by the speed and effectiveness of the COVID-19 vaccine development process. This could have led to a more positive view of the industry overall.

Research objective 4 is to analyze the relationship between demographic variables and the publics' perception. Gender, age, and the level of education are interrelated with the perception about the industry. These interrelations could be interesting for marketing analysts to develop marketing campaigns which fits best to target groups like age ranges for example.

To sum it up, even after the corresponding quantitative analysis in this dissertation, not all dimensions of reputation could be analyzed in detail within this paper. It is an overview and introduction to the complex world of reputation and what influences corporate reputation in the context of the pharmaceutical industry. The pharmaceutical industry has been struggling with a negative reputation for a long time (DEANGELIS, 2016). However, the analysis of the research results also shows that reputation has improved slightly since the corona pandemic. Whether this is a one-time effect that fizzles out after a short time cannot be conclusively determined. Nevertheless, the public's perception depends on which sources of information are used to form knowledge or to get informed about a industry.

In a highly competitive and regulated industry like pharmaceuticals, corporate reputation serves as a valuable intangible asset (LEVAGGI et al., 2017). It remains to be seen whether Covid will have a positive effect on reputation in the long term.

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# 8 Appendix

## 8.1 Appendix 1: Questionnaire

### Public Perception about the Pharmaceutical Industry before and after COVID

### Questionnaire Public Perception of the Pharmaceutical Industry before and after COVID

Over the last years, the pharmaceutical industry has faced several reputation problems. During the COVID-pandemic, this may have changed. The research aim of this questionnaire is to answer the following questions:
- What influences the public's' perception in general?
- What is the public perception about the pharmaceutical industry before COVID?
- What is the public perception about the pharmaceutical industry after COVID?

**Disclaimer**
Please note: your responses to this survey are completely anonymous and cannot be traced back to the respondent. No personally identifiable information is captured unless you voluntarily offer personal or contact information in any of the comment fields. The questionnaire will be used for general analytical purposes only.

By clicking 'I Accept' on the survey, you agree to it.

If you have any concerns/questions, please send an email to: lena.goossens.2021@student.ism.de

Thank you for contributing!

**Do you accept the survey conditions? ***

| | |
|---|---|
| ◯ Yes | ◯ No |

## Corporate Reputation

**Which definition of Corporate Reputation fits the best in your point of view? ***

- ○ "A perceptual representation of a company's past actions and future prospects that describes the firm's overall appeal to all of its key constituents when compared with other leading rivals" (Fombrun, 1996).
- ○ "The aggregation of a single stakeholder's perception of how well organizational responses are meeting the demands and expectations of many organizational stakeholders" (Wartick, 1992).
- ○ "Corporate reputation is a global, temporary stable, evaluative judgement about a firm that is shared by multiple constituencies" (Highhouse et al., 2009).
- ○ "A corporate reputation is a collective representation of a firm's past actions and results that describes the firm's ability to deliver valued outcomes to multiple stakeholders" ( Fombrun and Van Riel, 1997).

**Please rank the following variables of Corporate Reputation in order of importance to you, first being the most important: ***

| | |
|---|---|
| Media visibility and exposure | 1. |
| Social and environmental responsiveness | |
| Quality of product/services | |
| Financial performance | |
| Industry | |
| Prior levels of corporate reputation | |

**Which sources of information are you using the most when trying to form a perception about a company? Please rank the following items (first is used the most): ***

| | |
|---|---|
| Personal experience/knowledge | 1. |
| Word of mouth (family & friends) | |
| Corporate Media (e.g. company website) | |
| Mass Media (e.g. newspaper, articles, journals, interviews, ...) | |
| Social Media (e.g. Facebook, Instagram, ...) | |

## Reputation Pharma before COVID

**Overall, how familiar are you with the Pharmaceutical Industry? ***

| Very familiar | | | Not at all familiar |
|---|---|---|---|
| 1 | 2 | 3 | 4 |

**What was your general opinion about the Pharmaceutical Industry before COVID? ***

- ◯ Very positive
- ◯ Somewhat positive
- ◯ Somewhat negative
- ◯ Very negative

**Are you using medications or similar products from the pharmaceutical industry on a regular basis? ***

- ◯ Not at all. I prefer other alternatives and try to avoid medications.
- ◯ Sometimes, when I have a flue for example.
- ◯ Yes regularly, as I have a chronic disease for example.

**Do you agree with the following statements? ***

| | Strongly agree | Agree | Disagree | Strongly disagree |
|---|---|---|---|---|
| "Big bad Pharma": The Pharmaceutical industry inflate the prices of life-saving medications, making them unaffordable for many patients, and prioritizing profits over public health. | ◯ | ◯ | ◯ | ◯ |
| Saving lives and improving health outcomes for patients around the world: Medications developed and produced by pharmaceutical companies have had a significant impact on global public health by treating diseases, managing chronic conditions, preventing infections, and alleviating suffering. | ◯ | ◯ | ◯ | ◯ |
| Lack of transparency: Pharmaceutical companies selectively publishing or withholding results from clinical trials, which can skew the overall evidence base and limit access to important information about the safety and efficacy of medications. | ◯ | ◯ | ◯ | ◯ |
| Affordability of medications: Pharmaceutical companies are often criticized for lack of transparency in their pricing practices, such as the role of rebates, discounts, and pricing negotiations with insurers and other stakeholders | ◯ | ◯ | ◯ | ◯ |
| Significant driver of innovation in healthcare: Pharmaceutical companies invest heavily in research and development (R&D) to discover and develop new medications, therapies, and medical technologies, with the aim of improving patient outcomes, addressing medical needs, and advancing medical knowledge. | ◯ | ◯ | ◯ | ◯ |
| Public perception and trust: The pharmaceutical industry has faced criticism and challenges in terms of public perception and trust. Concerns around perceived influence on policy-making and lobbying efforts have impacted public trust in the industry. | ◯ | ◯ | ◯ | ◯ |

**What initiatives do you believe could help improve the reputation of the pharmaceutical industry? ***

You can select max. 3 options.

- [ ] Lowering drug prices to make medications more affordable
- [ ] Increasing transparency in pricing and research
- [ ] Strengthening regulations to ensure ethical behavior and reduce misconduct
- [ ] Improving access to affordable medications, especially for developing countries
- [ ] Limiting marketing and promotion of prescription drugs to healthcare professionals and consumers

**How important do you think it is for pharmaceutical companies to engage in corporate social responsibility (CSR) initiatives, such as philanthropy or community outreach, to improve their reputation? ***

- ( ) Extremely important
- ( ) Very important
- ( ) Slightly important
- ( ) Not important at all

## Reputation Pharma after COVID

**Overall, how much has your perception of the pharmaceutical industry changed since the onset of the COVID-19 pandemic? ***

| Changed significantly | | | Not changed at all. |
|---|---|---|---|
| 1 | 2 | 3 | 4 |

**In which way has your perception of the pharmaceutical industry changed after the COVID-19 pandemic? ***

- ◯ Very positive
- ◯ Somewhat positive
- ◯ Somewhat negative
- ◯ Very negative

**How confident are you in the safety and efficacy of COVID-19 vaccines developed by pharmaceutical companies? ***

| Highly confident | | | Not confident |
|---|---|---|---|
| 1 | 2 | 3 | 4 |

**In your opinion, how transparent do you think pharmaceutical companies have been in sharing information about the development, testing, and side effects of COVID-19 vaccines and treatments? ***

| Very transparent | | | Not transparent |
|---|---|---|---|
| 1 | 2 | 3 | 4 |

**Please answer the following questions: ***

| | Yes | No |
|---|---|---|
| 1. Do you believe that the pharmaceutical industry played a crucial role in developing and distributing vaccines and treatments for COVID-19? | ◯ | ◯ |
| 2. Do you believe that the prices of COVID-19 vaccines and treatments developed by pharmaceutical companies are reasonable? | ◯ | ◯ |
| 3. Do you feel that the pharmaceutical industry has done enough to address global vaccine distribution disparities during the COVID-19 pandemic? | ◯ | ◯ |
| 4. Have you encountered any misinformation or conspiracy theories related to the pharmaceutical industry and COVID-19? | ◯ | ◯ |

**Which sources of information have you used the most to get informed about the pharmaceutical industry and the different treatments against COVID-19 (e.g. vaccination development, safety & efficacy, side effects, ...)? ***

Please rank them (first is used the most):

- Personal experience/knowledge
- Word of mouth (family & friends)
- Corporate Media (e.g. company website)
- Mass Media (e.g. newspaper, articles, journals, interviews, ...)
- Social Media (e.g. Facebook, Instagram, ...)
- Sources distributed by the Government

1.

## Demographic Questions

**Gender: What is your identity? ***

- ◯ Female
- ◯ Male
- ◯ Non-binary
- ◯ Other (please specify)

**What is your age? ***

- ◯ 18-24
- ◯ 25-34
- ◯ 35-44
- ◯ 45-54
- ◯ 55-64
- ◯ 65 or older

**What is your highest level of education? ***

- ◯ Less than a high school diploma
- ◯ High school degree or euqivalent
- ◯ Bachelor's degree (e.g. BA, BS)
- ◯ Master's degree (e.g. MA, MS, MBA)
- ◯ Doctorate (e.g. PhD)
- ◯ Other (please specify)

**What is your status of employment? ***

- ◯ Employed, working full-time
- ◯ Employed, working part-time
- ◯ Not employed, looking for work
- ◯ Not employed, NOT looking for work
- ◯ Retired
- ◯ Disabled, not able to work
- ◯ Other (please specify)

**Please write down your country of origin (in english) ***

0 / 30

## 8.2 Appendix 2: Research objectives and survey questions

| **Research question 1:** What factors influence corporate reputation? | | |
|---|---|---|
| **Research objective 1:** Understand the factors that build and form corporate reputation in the pharmaceutical industry. | | |
| **Questions questionnaire** | **Required variables** | **Data rating** |
| Which definition of Corporate Reputation fits the best in your point of view? | Different definitions<br>- Fombrun, 1996<br>- Wartick, 1992<br>- Highhouse et.al., 2009<br>- Fombrun & Van Riel. 1997 | Select one answer |
| Please rank the following variables of Corporate Reputation in order of importance to you. First being the most important. | Main variables from the RQ<br>- Media visibility & exposure<br>- Social and environmental responsiveness<br>- Quality of product/services<br>- Financial performance<br>- Industry<br>- Prior levels of corporate reputation | Ranking |
| Which sources of information are you using the most when trying to form a perception about a company? Please rank the following items (first is used the most). | - Personal experience/knowledge<br>- Word of mouth (family & friends)<br>- Corporate Media (company website)<br>- Mass Media (newspaper, articles, journals, interviews)<br>- Social Media (Facebook, Instagram) | Ranking |
| **Research question 2**: How does the public think about the pharmaceutical industry and why? What influences the public opinion? | | |
| **Research objective 2:** Examine the relationship between corporate reputation and the public/customers as stakeholder and their impact. | | |
| What was your general opinion about the Pharmaceutical Industry before COVID? | - Very positive<br>- Somewhat positive<br>- Somewhat negative<br>- Negative | Select one answer |
| Do you agree with the following statements? | Main reputation problems<br>- “Big bad Pharma<br>- Saving lives and improving health outcomes for patients around the world | Level of agreement |

| | | |
|---|---|---|
| | - Lack of transparency<br>- Affordability of medications<br>- Significant driver of innovation in healthcare<br>- Public perception and trust | |
| What initiatives do you believe could help improve the reputation of the pharmaceutical industry? | - Lowering drug prices<br>- Increasing transparency<br>- Strengthening regulations to ensure ethical behavior<br>- Improving access to affordable medication<br>- Limiting marketing | Level of agreement |
| **Research question 3:** To what extent did the Covid pandemic and its coverage in terms of communication by the companies themselves and the media impact the corporate reputation of the pharmaceutical industry? | | |
| **Research objective 3**: Investigate the impact of a worldwide Crisis like Covid on corporate reputation in the pharmaceutical industry. | | |
| Overall, in which way has your perception of the pharmaceutical industry changed after the COVID-19 pandemic? | - Very positive<br>- Somewhat positive<br>- Somewhat negative<br>- Negative | Select one answer |
| Which sources of information have you used the most to get informed about the pharmaceutical industry and the different treatments against COVID-19? | - Personal experience/knowledge<br>- Word of mouth (family & friends)<br>- Corporate Media (company website)<br>- Mass Media (newspaper, articles, journals, interviews)<br>- Social Media (Facebook, Instagram)<br>- Sources distributed by the Government | Ranking |
| **Research question 4:** Do demographical variables affect the corporate reputation of the pharmaceutical industry by consideration the general public's perception? | | |
| **Research objective 4:** Analyze the relationship between demographical variables and public's perception on the pharmaceutical industry | | |
| Gender: What is your identity? | - Female<br>- Male<br>- Non-binary<br>- Other (specify) | Select one answer |

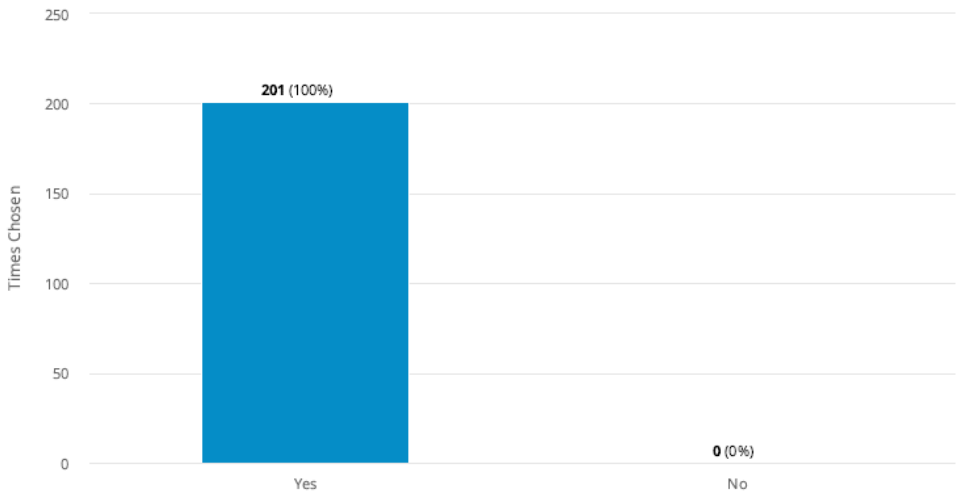
| | | |
|---|---|---|
| What is your age? | - 18-24<br>- 25-43<br>- 35-44<br>- 45-54<br>- 55-64<br>- 65 and older | Select one answer |
| Country of origin? | - Please write down | Write down one answer |
| What is your highest level of education? | - Less than a high school diploma<br>- High school degree or equivalent<br>- Bachelor's degree (e.g., BA, BS)<br>- Master's degree (e.g., MA, MSc, MBA)<br>- Doctorate (e.g., PhD) | Select one answer |
| What is your status of employment? | - Employed, working full-time<br>- Employed, working part-time<br>- Not employed, looking for work<br>- Not employed, NOT looking for work<br>- Retired<br>- Disabled, not able to work<br>- Other (specify) | Select one answer |

## 8.3 Appendix 3: Results questionnaire

# Public Perception about the Pharmaceutical Industry before and after COVID

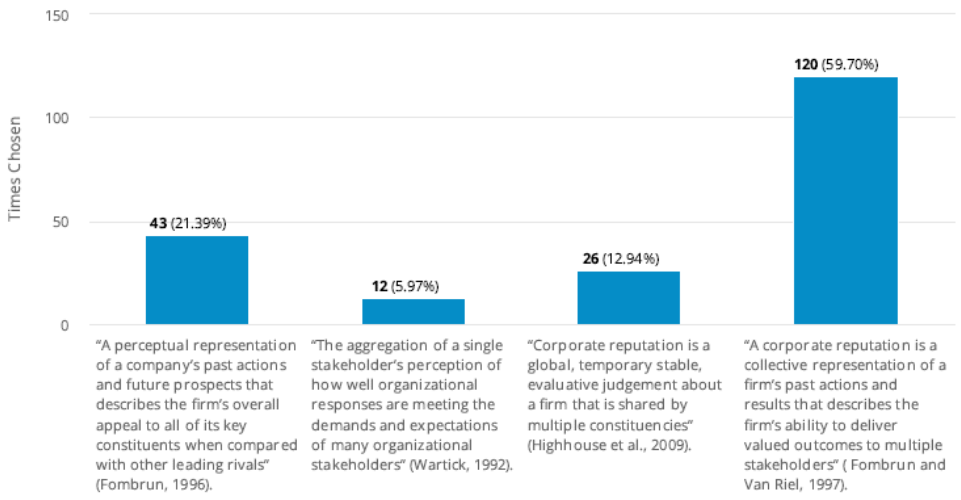
### Do you accept the survey conditions?

Number of responses: 201



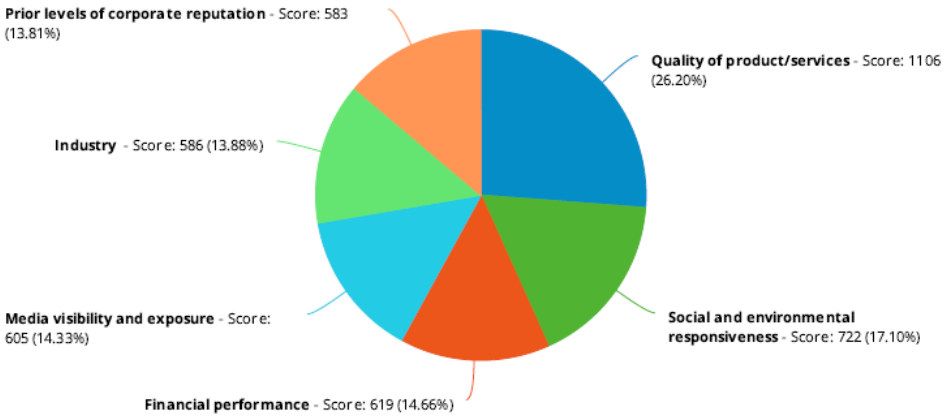

### Which definition of Corporate Reputation fits the best in your point of view?

Number of responses: 201



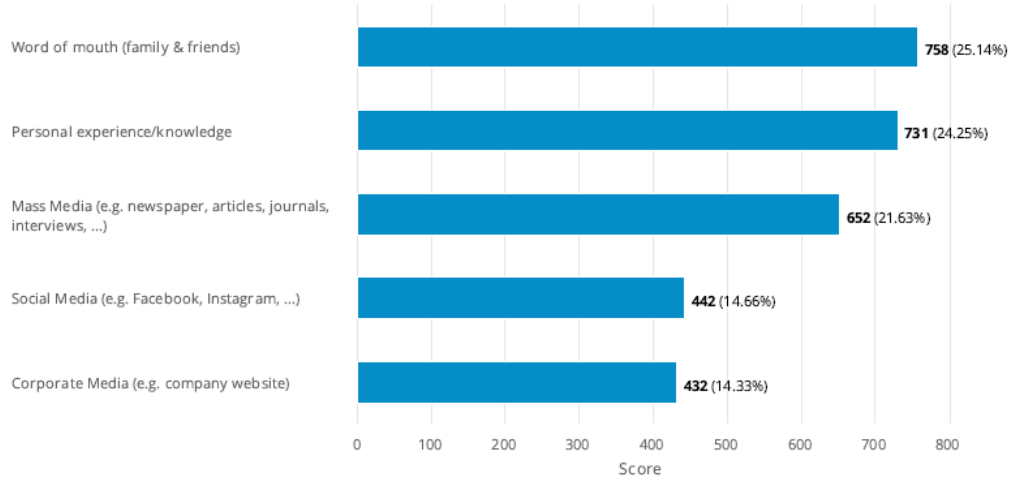
**Please rank the following variables of Corporate Reputation in order of importance to you, first being the most important:**

Number of responses: 201



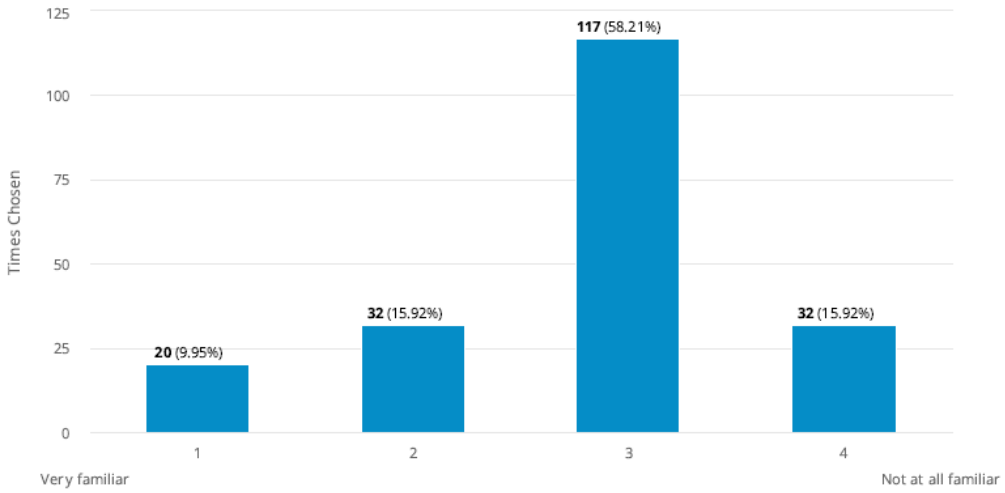

**Which sources of information are you using the most when trying to form a perception about a company? Please rank the following items (first is used the most):**

Number of responses: 201



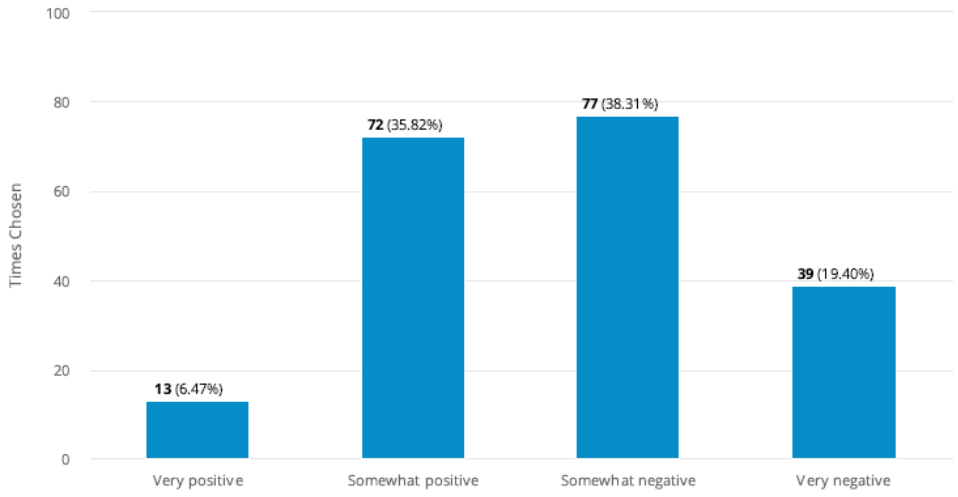
**Overall, how familiar are you with the Pharmaceutical Industry?**

Number of responses: 201



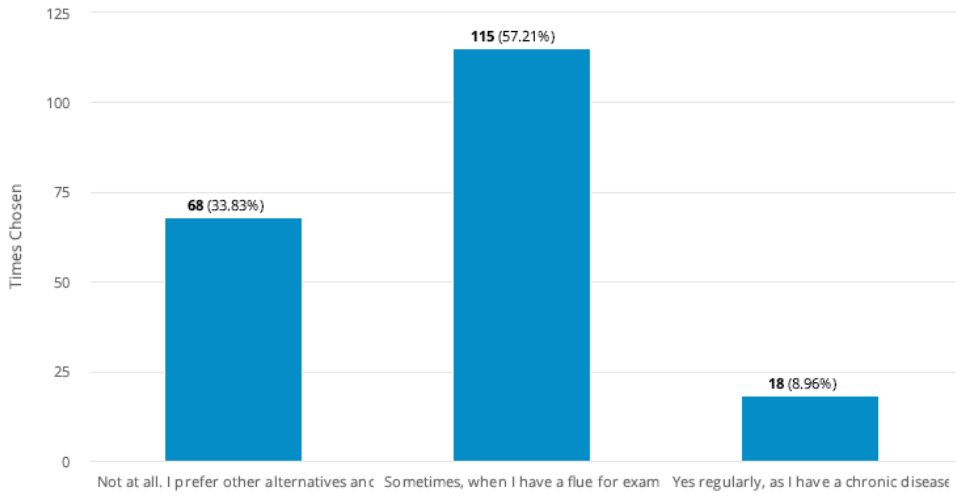

**What was your general opinion about the Pharmaceutical Industry before COVID?**

Number of responses: 201



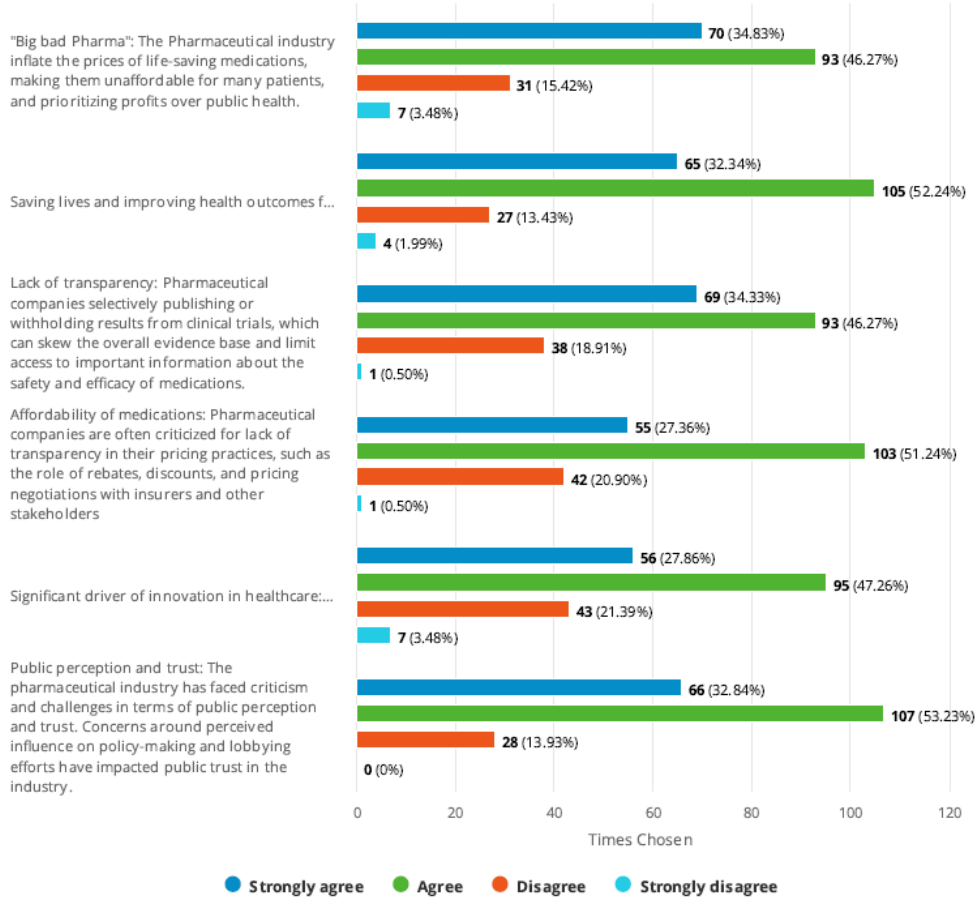
## Are you using medications or similar products from the pharmaceutical industry on a regular basis?

Number of responses: 201



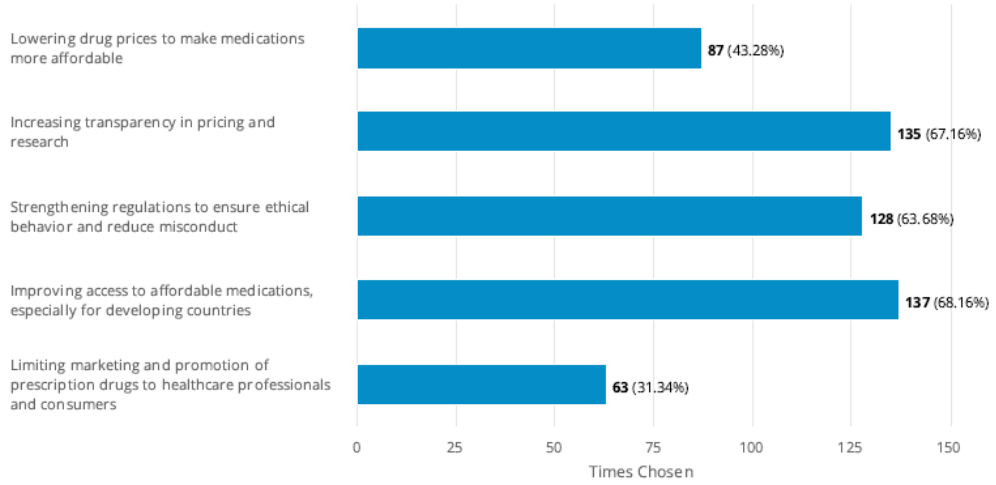

## Do you agree with the following statements?

Number of responses: 201



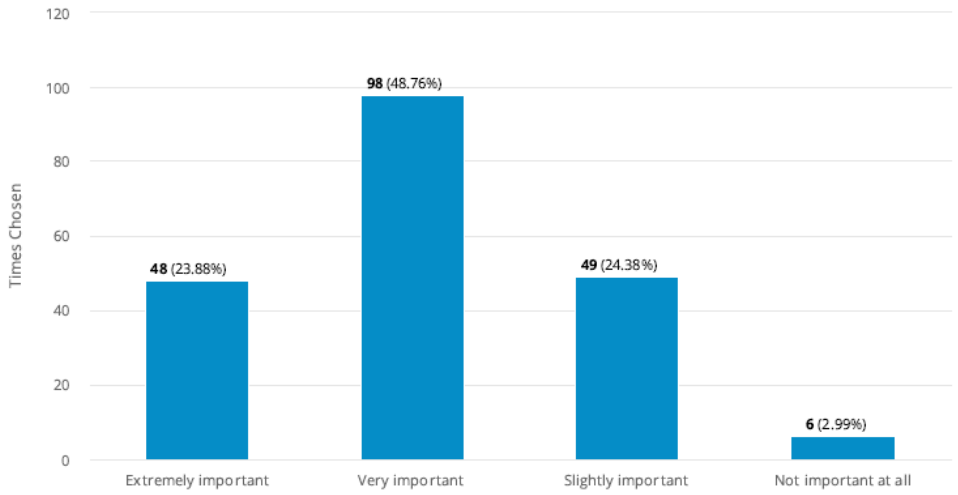
**What initiatives do you believe could help improve the reputation of the pharmaceutical industry?**

Number of responses: 201



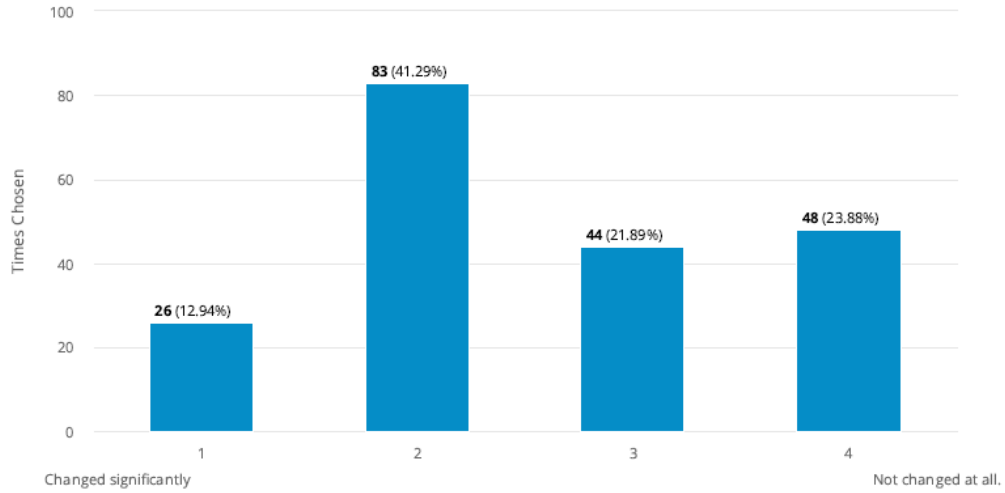

**How important do you think it is for pharmaceutical companies to engage in corporate social responsibility (CSR) initiatives, such as philanthropy or community outreach, to improve their reputation?**

Number of responses: 201



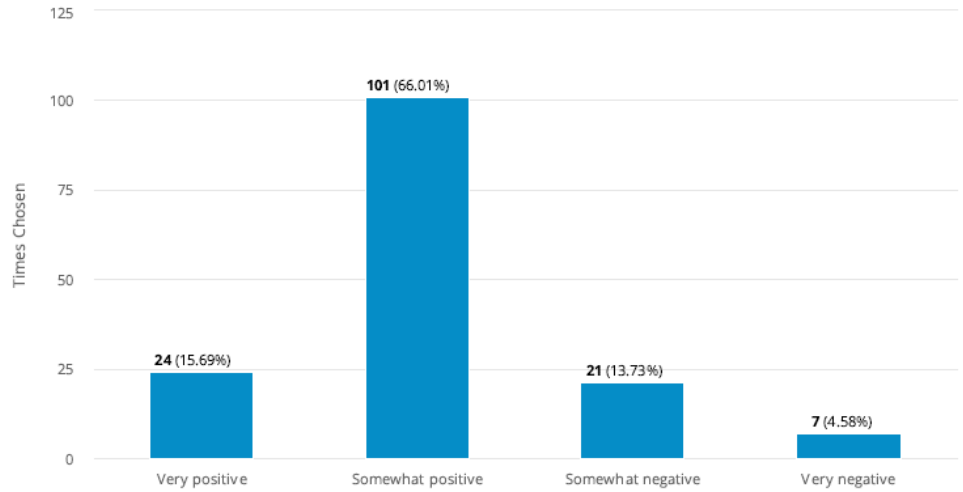
**Overall, how much has your perception of the pharmaceutical industry changed since the onset of the COVID-19 pandemic?**

Number of responses: 201



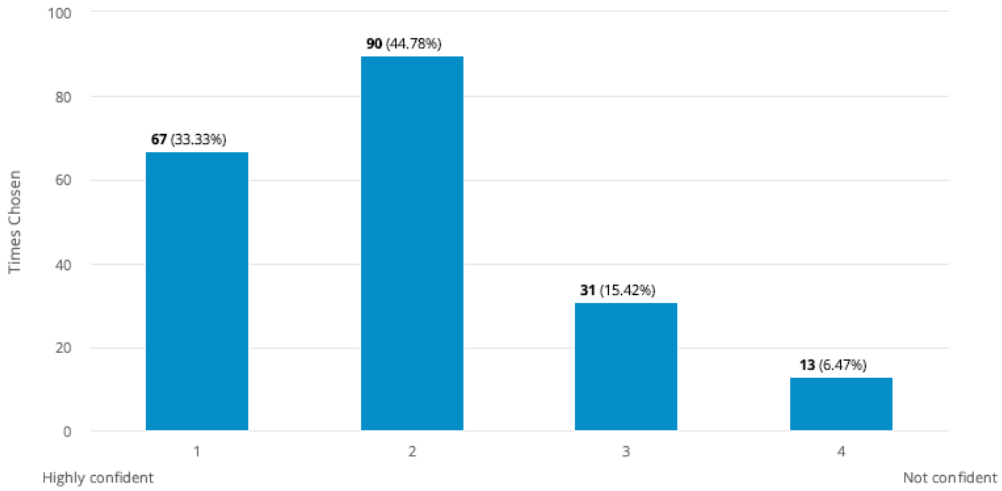

**In which way has your perception of the pharmaceutical industry changed after the COVID-19 pandemic?**

Number of responses: 153



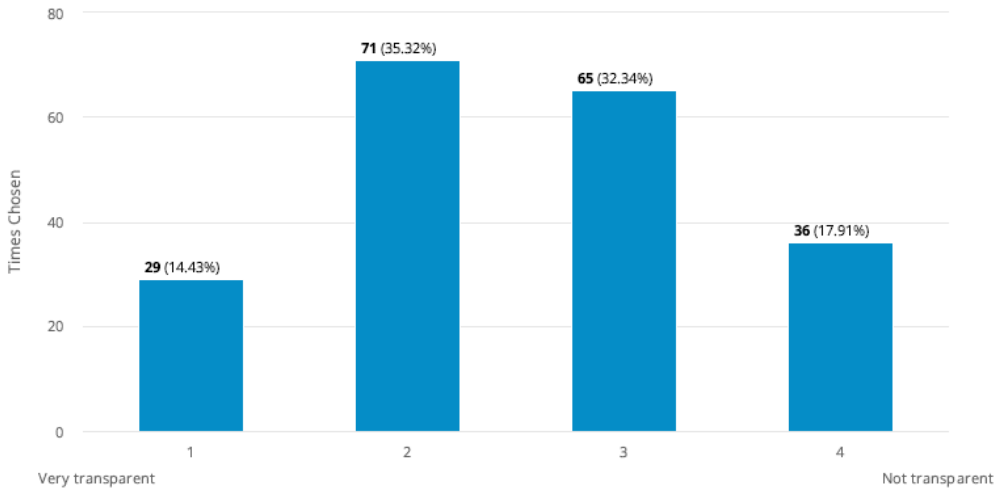
**How confident are you in the safety and efficacy of COVID-19 vaccines developed by pharmaceutical companies?**

Number of responses: 201



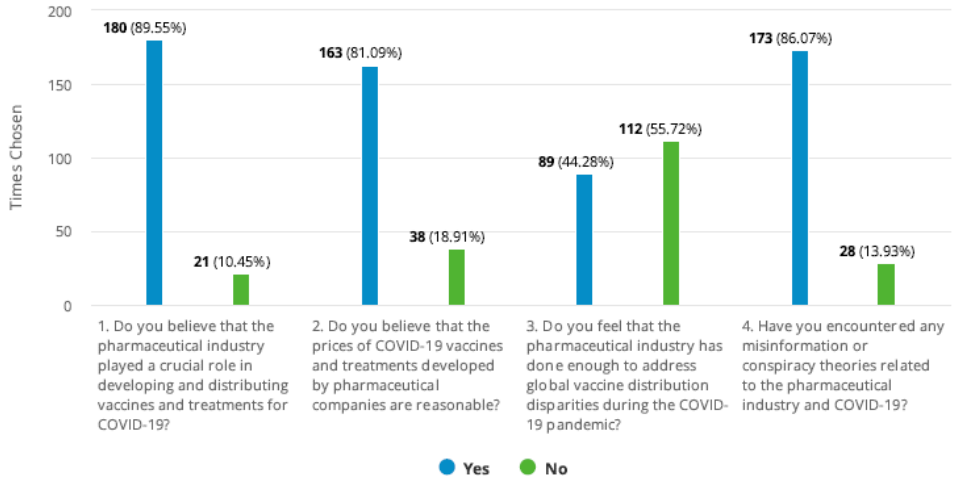

**In your opinion, how transparent do you think pharmaceutical companies have been in sharing information about the development, testing, and side effects of COVID-19 vaccines and treatments?**

Number of responses: 201



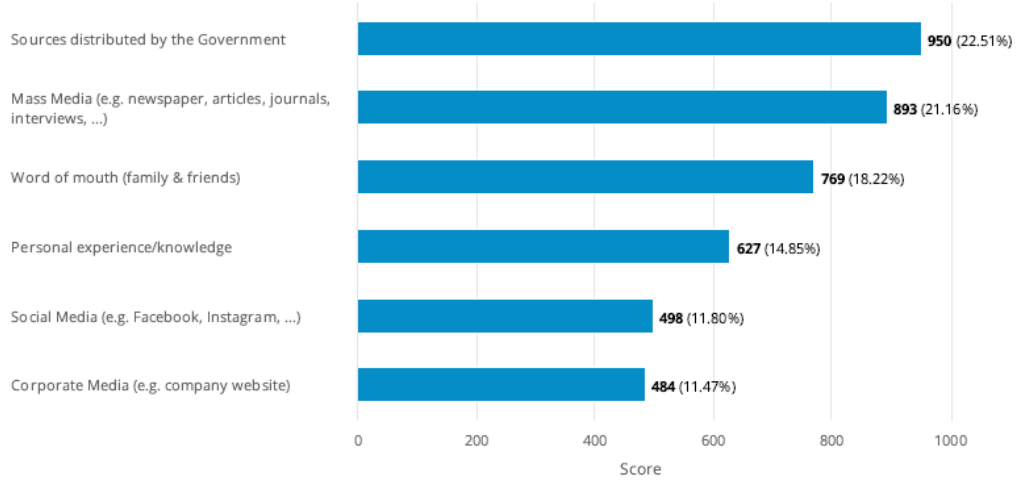
**Please answer the following questions:**

Number of responses: 201



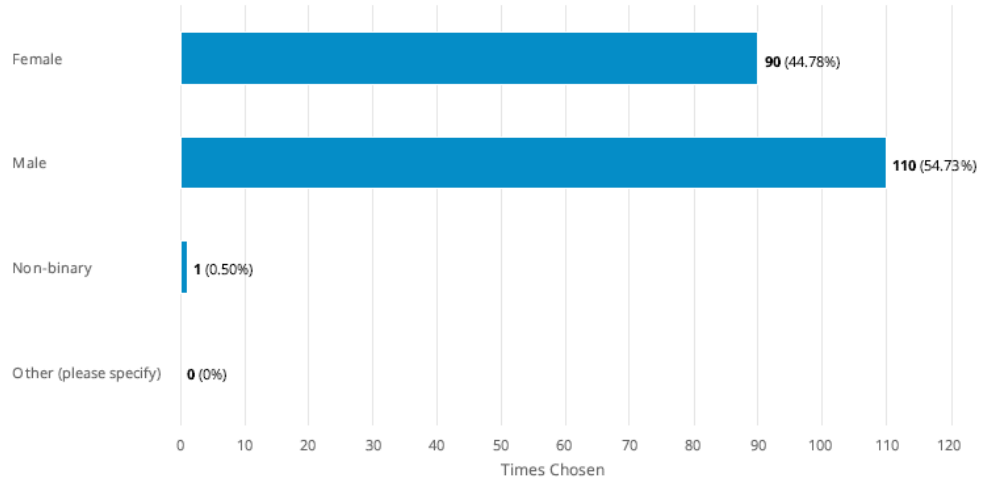

**Which sources of information have you used the most to get informed about the pharmaceutical industry and the different treatments against COVID-19 (e.g. vaccination development, safety & efficacy, side effects, ...)?**

Number of responses: 201



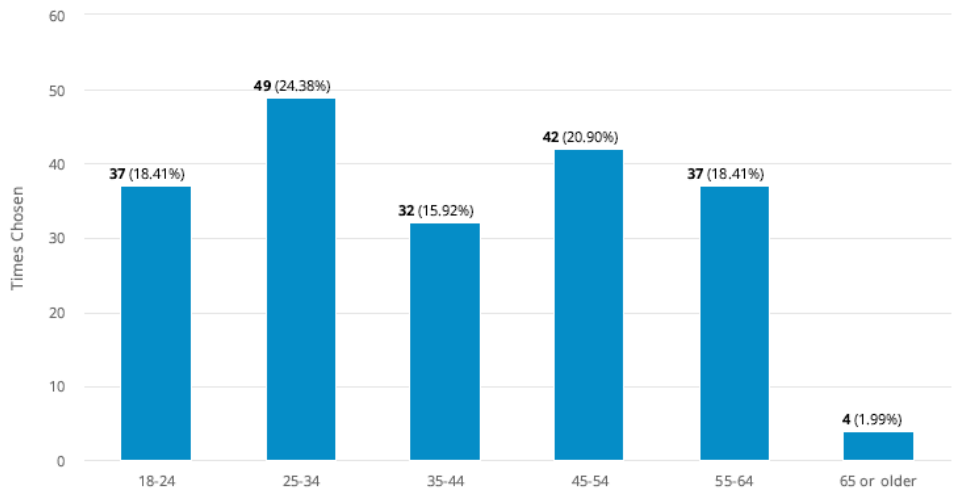
## Gender: What is your identity?

Number of responses: 201



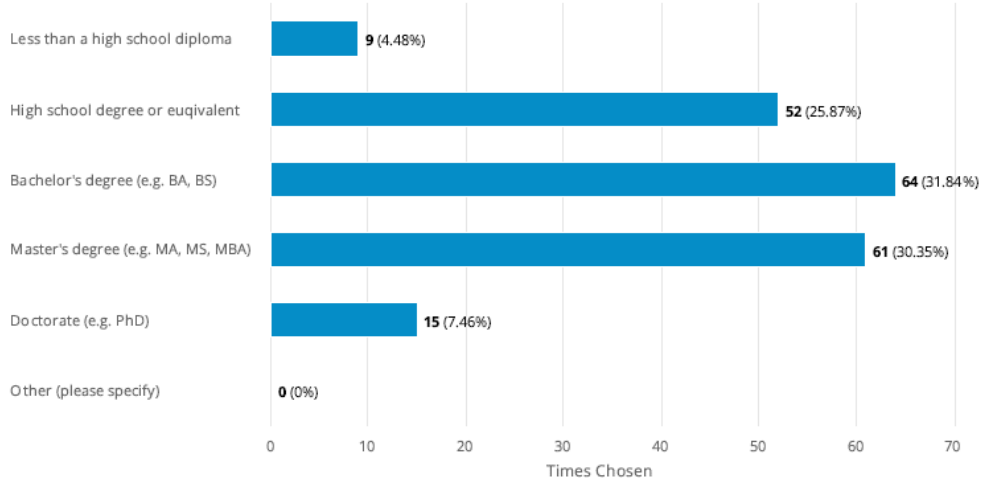

## What is your age?

Number of responses: 201



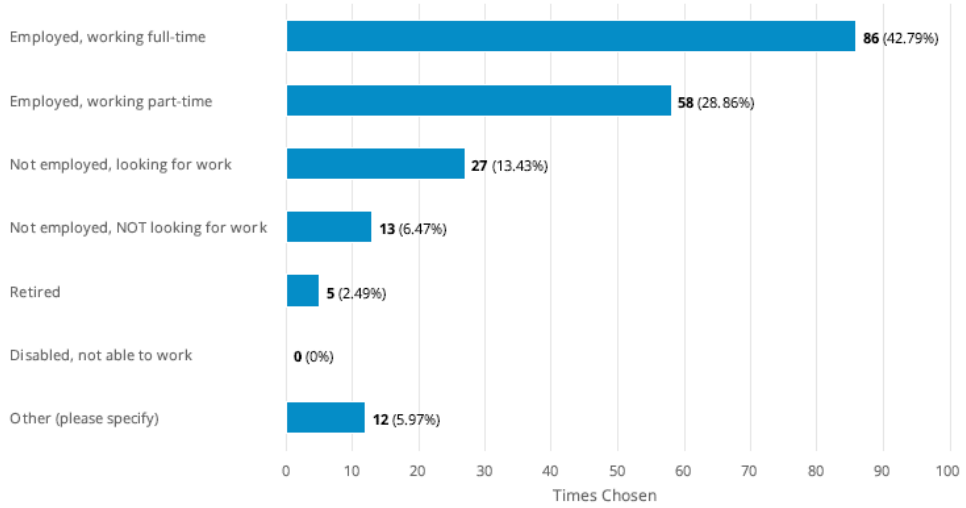
## What is your highest level of education?

Number of responses: 201



## What is your status of employment?

Number of responses: 201




"Other (please specify)" text answers:

| |
|---|
| Student |
| Student |
| student |
| Student & Working Student |
| working student |
| student |
| Nutraceutical business owner |
| University Student |
| Working student |
| Student |

**Please write down your country of origin (in english)**

Number of responses: 201

### 8.4 Appendix 4: SPSS results H1-H3

## Case Processing Summary

| | Cases | | | | | |
|---|---|---|---|---|---|---|
| | Valid | | Missing | | Total | |
| | N | Percent | N | Percent | N | Percent |
| Gender: What is your identity? * Which sources of information are you using the most: Personal experience/knowledge | 201 | 100,0% | 0 | 0,0% | 201 | 100,0% |
| Gender: What is your identity? * Which sources of information are you using the most: Word of mouth (family & friends) | 201 | 100,0% | 0 | 0,0% | 201 | 100,0% |
| Gender: What is your identity? * Which sources of information are you using the most: Corporate Media (e.g. company website) | 201 | 100,0% | 0 | 0,0% | 201 | 100,0% |
| Gender: What is your identity? * Which sources of information are you using the most: Mass Media (e.g. newspaper, articles, journals, interviews, ...) | 201 | 100,0% | 0 | 0,0% | 201 | 100,0% |
| Gender: What is your identity? * Which sources of information are you using the most: Social Media (e.g. Facebook, Instagram, ...) | 201 | 100,0% | 0 | 0,0% | 201 | 100,0% |

**Gender: What is your identity? * Which sources of information are you using the most: Personal experience/knowledge**

**Crosstab**

Count

| | | Which sources of information are you using the most: Personal experience/knowledge | | | | | |
|---|---|---|---|---|---|---|---|
| | | Used the most | 2nd place | 3rd place | 4th place | Used least | Total |
| Gender: What is your identity? | Female | 34 | 21 | 16 | 12 | 7 | 90 |
| | Male | 26 | 37 | 30 | 9 | 8 | 110 |
| | Non-binary | 0 | 1 | 0 | 0 | 0 | 1 |
| Total | | 60 | 59 | 46 | 21 | 15 | 201 |

**Chi-Square Tests**

| | Value | df | Asymptotic Significance (2-sided) |
|---|---|---|---|
| Pearson Chi-Square | 10,749[a] | 8 | ,216 |
| Likelihood Ratio | 10,828 | 8 | ,212 |
| Linear-by-Linear Association | ,368 | 1 | ,544 |
| N of Valid Cases | 201 | | |

a. 5 cells (33,3%) have expected count less than 5. The minimum expected count is ,07.

**Symmetric Measures**

| | | Value | Asymptotic Standard Error[a] | Approximate T[b] | Approximate Significance |
|---|---|---|---|---|---|
| Nominal by Nominal | Phi | ,231 | | | ,216 |
| | Cramer's V | ,164 | | | ,216 |
| Ordinal by Ordinal | Kendall's tau-b | ,065 | ,065 | 1,002 | ,316 |
| | Gamma | ,104 | ,104 | 1,002 | ,316 |
| | Spearman Correlation | ,072 | ,072 | 1,018 | ,310[c] |
| Interval by Interval | Pearson's R | ,043 | ,070 | ,606 | ,545[c] |
| N of Valid Cases | | 201 | | | |

a. Not assuming the null hypothesis.

b. Using the asymptotic standard error assuming the null hypothesis.

c. Based on normal approximation.

**Gender: What is your identity? * Which sources of information are you using the most: Word of mouth (family & friends)**

**Crosstab**

Count

| | | Which sources of information are you using the most: Word of mouth (family & friends) | | | | | |
|---|---|---|---|---|---|---|---|
| | | Used the most | 2nd place | 3rd place | 4th place | Used least | Total |
| Gender: What is your identity? | Female | 23 | 31 | 19 | 11 | 6 | 90 |
| | Male | 47 | 31 | 15 | 10 | 7 | 110 |
| | Non-binary | 0 | 0 | 1 | 0 | 0 | 1 |
| Total | | 70 | 62 | 35 | 21 | 13 | 201 |

**Chi-Square Tests**

| | Value | df | Asymptotic Significance (2-sided) |
|---|---|---|---|
| Pearson Chi-Square | 11,647[a] | 8 | ,168 |
| Likelihood Ratio | 10,511 | 8 | ,231 |
| Linear-by-Linear Association | 2,809 | 1 | ,094 |
| N of Valid Cases | 201 | | |

a. 5 cells (33,3%) have expected count less than 5. The minimum expected count is ,06.

**Symmetric Measures**

| | | Value | Asymptotic Standard Error[a] | Approximate T[b] | Approximate Significance |
|---|---|---|---|---|---|
| Nominal by Nominal | Phi | ,241 | | | ,168 |
| | Cramer's V | ,170 | | | ,168 |
| Ordinal by Ordinal | Kendall's tau-b | -,134 | ,063 | -2,124 | ,034 |
| | Gamma | -,216 | ,101 | -2,124 | ,034 |
| | Spearman Correlation | -,147 | ,069 | -2,093 | ,038[c] |
| Interval by Interval | Pearson's R | -,119 | ,069 | -1,684 | ,094[c] |
| N of Valid Cases | | 201 | | | |

a. Not assuming the null hypothesis.

b. Using the asymptotic standard error assuming the null hypothesis.

c. Based on normal approximation.

**Gender: What is your identity? * Which sources of information are you using the most: Corporate Media (e.g. company website)**

**Crosstab**

Count

| | | Which sources of information are you using the most: Corporate Media (e.g. company website) | | | | | |
|---|---|---|---|---|---|---|---|
| | | Used the most | 2nd place | 3rd place | 4th place | Used least | Total |
| Gender: What is your identity? | Female | 13 | 6 | 10 | 26 | 35 | 90 |
| | Male | 9 | 5 | 14 | 32 | 50 | 110 |
| | Non-binary | 1 | 0 | 0 | 0 | 0 | 1 |
| Total | | 23 | 11 | 24 | 58 | 85 | 201 |

**Chi-Square Tests**

| | Value | df | Asymptotic Significance (2-sided) |
|---|---|---|---|
| Pearson Chi-Square | 10,495[a] | 8 | ,232 |
| Likelihood Ratio | 7,146 | 8 | ,521 |
| Linear-by-Linear Association | 1,029 | 1 | ,310 |
| N of Valid Cases | 201 | | |

a. 6 cells (40,0%) have expected count less than 5. The minimum expected count is ,05.

**Symmetric Measures**

| | | Value | Asymptotic Standard Error[a] | Approximate T[b] | Approximate Significance |
|---|---|---|---|---|---|
| Nominal by Nominal | Phi | ,229 | | | ,232 |
| | Cramer's V | ,162 | | | ,232 |
| Ordinal by Ordinal | Kendall's tau-b | ,067 | ,066 | 1,022 | ,307 |
| | Gamma | ,112 | ,109 | 1,022 | ,307 |
| | Spearman Correlation | ,073 | ,072 | 1,036 | ,301[c] |
| Interval by Interval | Pearson's R | ,072 | ,076 | 1,015 | ,311[c] |
| N of Valid Cases | | 201 | | | |

a. Not assuming the null hypothesis.

b. Using the asymptotic standard error assuming the null hypothesis.

c. Based on normal approximation.

**Gender: What is your identity? * Which sources of information are you using the most: Mass Media (e.g. newspaper, articles, journals, interviews, ...)**

**Crosstab**

Count

| | | Which sources of information are you using the most: Mass Media (e.g. newspaper, articles, journals, interviews, ...) | | | | | |
|---|---|---|---|---|---|---|---|
| | | Used the most | 2nd place | 3rd place | 4th place | Used least | Total |
| Gender: What is your identity? | Female | 13 | 17 | 31 | 19 | 10 | 90 |
| | Male | 21 | 31 | 36 | 17 | 5 | 110 |
| | Non-binary | 0 | 0 | 0 | 1 | 0 | 1 |
| Total | | 34 | 48 | 67 | 37 | 15 | 201 |

**Chi-Square Tests**

| | Value | df | Asymptotic Significance (2-sided) |
|---|---|---|---|
| Pearson Chi-Square | 10,640[a] | 8 | ,223 |
| Likelihood Ratio | 9,631 | 8 | ,292 |
| Linear-by-Linear Association | 4,017 | 1 | ,045 |
| N of Valid Cases | 201 | | |

a. 5 cells (33,3%) have expected count less than 5. The minimum expected count is ,07.

**Symmetric Measures**

| | | Value | Asymptotic Standard Error[a] | Approximate T[b] | Approximate Significance |
|---|---|---|---|---|---|
| Nominal by Nominal | Phi | ,230 | | | ,223 |
| | Cramer's V | ,163 | | | ,223 |
| Ordinal by Ordinal | Kendall's tau-b | -,131 | ,063 | -2,069 | ,039 |
| | Gamma | -,211 | ,101 | -2,069 | ,039 |
| | Spearman Correlation | -,145 | ,070 | -2,072 | ,040[c] |
| Interval by Interval | Pearson's R | -,142 | ,070 | -2,020 | ,045[c] |
| N of Valid Cases | | 201 | | | |

a. Not assuming the null hypothesis.

b. Using the asymptotic standard error assuming the null hypothesis.

c. Based on normal approximation.

**Gender: What is your identity? * Which sources of information are you using the most: Social Media (e.g. Facebook, Instagram, ...)**

**Crosstab**

Count

| | | Which sources of information are you using the most: Social Media (e.g. Facebook, Instagram, ...) | | | | | |
|---|---|---|---|---|---|---|---|
| | | Used the most | 2nd place | 3rd place | 4th place | Used least | Total |
| Gender: What is your identity? | Female | 7 | 15 | 14 | 22 | 32 | 90 |
| | Male | 7 | 6 | 15 | 42 | 40 | 110 |
| | Non-binary | 0 | 0 | 0 | 0 | 1 | 1 |
| Total | | 14 | 21 | 29 | 64 | 73 | 201 |

**Chi-Square Tests**

| | Value | df | Asymptotic Significance (2-sided) |
|---|---|---|---|
| Pearson Chi-Square | 10,929[a] | 8 | ,206 |
| Likelihood Ratio | 11,297 | 8 | ,185 |
| Linear-by-Linear Association | 3,383 | 1 | ,066 |
| N of Valid Cases | 201 | | |

a. 5 cells (33,3%) have expected count less than 5. The minimum expected count is ,07.

**Symmetric Measures**

| | | Value | Asymptotic Standard Error[a] | Approximate T[b] | Approximate Significance |
|---|---|---|---|---|---|
| Nominal by Nominal | Phi | ,233 | | | ,206 |
| | Cramer's V | ,165 | | | ,206 |
| Ordinal by Ordinal | Kendall's tau-b | ,097 | ,065 | 1,491 | ,136 |
| | Gamma | ,159 | ,105 | 1,491 | ,136 |
| | Spearman Correlation | ,106 | ,071 | 1,509 | ,133[c] |
| Interval by Interval | Pearson's R | ,130 | ,070 | 1,850 | ,066[c] |
| N of Valid Cases | | 201 | | | |

a. Not assuming the null hypothesis.

b. Using the asymptotic standard error assuming the null hypothesis.

c. Based on normal approximation.

**Case Processing Summary**

| | Cases | | | | | |
|---|---|---|---|---|---|---|
| | Valid | | Missing | | Total | |
| | N | Percent | N | Percent | N | Percent |
| What is your age? * Which sources of information are you using the most: Personal experience/knowledge | 201 | 100,0% | 0 | 0,0% | 201 | 100,0% |
| What is your age? * Which sources of information are you using the most: Word of mouth (family & friends) | 201 | 100,0% | 0 | 0,0% | 201 | 100,0% |

| | | | | | | |
|---|---|---|---|---|---|---|
| What is your age? * Which sources of information are you using the most: Corporate Media (e.g. company website) | 201 | 100,0% | 0 | 0,0% | 201 | 100,0% |
| What is your age? * Which sources of information are you using the most: Mass Media (e.g. newspaper, articles, journals, interviews, ...) | 201 | 100,0% | 0 | 0,0% | 201 | 100,0% |
| What is your age? * Which sources of information are you using the most: Social Media (e.g. Facebook, Instagram, ...) | 201 | 100,0% | 0 | 0,0% | 201 | 100,0% |

**What is your age? * Which sources of information are you using the most: Personal experience/knowledge**

**Crosstab**

Count

| | | Which sources of information are you using the most: Personal experience/knowledge | | | | | |
|---|---|---|---|---|---|---|---|
| | | Used the most | 2nd place | 3rd place | 4th place | Used least | Total |
| What is your age? | 18-24 years | 13 | 6 | 4 | 7 | 7 | 37 |
| | 24-34 years | 20 | 8 | 11 | 6 | 4 | 49 |
| | 35-44 years | 9 | 15 | 5 | 1 | 2 | 32 |
| | 45-54 years | 10 | 14 | 15 | 3 | 0 | 42 |
| | 55-64 years | 7 | 16 | 8 | 4 | 2 | 37 |
| | 65 years and older | 1 | 0 | 3 | 0 | 0 | 4 |
| Total | | 60 | 59 | 46 | 21 | 15 | 201 |

**Chi-Square Tests**

| | Value | df | Asymptotic Significance (2-sided) |
|---|---|---|---|
| Pearson Chi-Square | 42,899[a] | 20 | ,002 |
| Likelihood Ratio | 44,775 | 20 | ,001 |
| Linear-by-Linear Association | ,754 | 1 | ,385 |
| N of Valid Cases | 201 | | |

a. 14 cells (46,7%) have expected count less than 5. The minimum expected count is ,30.

**Symmetric Measures**

| | | Value | Asymptotic Standard Error[a] | Approximate T[b] | Approximate Significance |
|---|---|---|---|---|---|
| Nominal by Nominal | Phi | ,462 | | | ,002 |
| | Cramer's V | ,231 | | | ,002 |
| Ordinal by Ordinal | Kendall's tau-b | -,001 | ,062 | -,010 | ,992 |
| | Gamma | -,001 | ,079 | -,010 | ,992 |
| | Spearman Correlation | -,008 | ,076 | -,109 | ,913[c] |
| Interval by Interval | Pearson's R | -,061 | ,074 | -,868 | ,387[c] |
| N of Valid Cases | | 201 | | | |

a. Not assuming the null hypothesis.

b. Using the asymptotic standard error assuming the null hypothesis.

c. Based on normal approximation.

**What is your age? * Which sources of information are you using the most: Word of mouth (family & friends)**

**Crosstab**

Count

| | | Which sources of information are you using the most: Word of mouth (family & friends) | | | | | |
|---|---|---|---|---|---|---|---|
| | | Used the most | 2nd place | 3rd place | 4th place | Used least | Total |
| What is your age? | 18-24 years | 4 | 7 | 10 | 10 | 6 | 37 |
| | 24-34 years | 9 | 16 | 11 | 10 | 3 | 49 |
| | 35-44 years | 14 | 10 | 6 | 1 | 1 | 32 |
| | 45-54 years | 24 | 13 | 4 | 0 | 1 | 42 |
| | 55-64 years | 19 | 13 | 4 | 0 | 1 | 37 |
| | 65 years and older | 0 | 3 | 0 | 0 | 1 | 4 |
| Total | | 70 | 62 | 35 | 21 | 13 | 201 |

**Chi-Square Tests**

| | Value | df | Asymptotic Significance (2-sided) |
|---|---|---|---|
| Pearson Chi-Square | 66,034[a] | 20 | <,001 |
| Likelihood Ratio | 72,905 | 20 | <,001 |
| Linear-by-Linear Association | 37,052 | 1 | <,001 |
| N of Valid Cases | 201 | | |

a. 14 cells (46,7%) have expected count less than 5. The minimum expected count is ,26.

**Symmetric Measures**

| | | Value | Asymptotic Standard Error[a] | Approximate T[b] | Approximate Significance |
|---|---|---|---|---|---|
| Nominal by Nominal | Phi | ,573 | | | <,001 |
| | Cramer's V | ,287 | | | <,001 |
| Ordinal by Ordinal | Kendall's tau-b | -,365 | ,050 | -7,161 | <,001 |
| | Gamma | -,465 | ,062 | -7,161 | <,001 |
| | Spearman Correlation | -,443 | ,060 | -6,973 | <,001[c] |
| Interval by Interval | Pearson's R | -,430 | ,064 | -6,727 | <,001[c] |
| N of Valid Cases | | 201 | | | |

a. Not assuming the null hypothesis.

b. Using the asymptotic standard error assuming the null hypothesis.

c. Based on normal approximation.

**What is your age? * Which sources of information are you using the most: Corporate Media (e.g. company website)**

**Crosstab**

Count

| | | Which sources of information are you using the most: Corporate Media (e.g. company website) | | | | | |
|---|---|---|---|---|---|---|---|
| | | Used the most | 2nd place | 3rd place | 4th place | Used least | Total |
| What is your age? | 18-24 years | 8 | 6 | 5 | 9 | 9 | 37 |
| | 24-34 years | 10 | 2 | 4 | 11 | 22 | 49 |
| | 35-44 years | 2 | 0 | 3 | 14 | 13 | 32 |
| | 45-54 years | 0 | 3 | 4 | 11 | 24 | 42 |
| | 55-64 years | 2 | 0 | 8 | 12 | 15 | 37 |

| | | | | | | |
|---|---|---|---|---|---|---|
| 65 years and older | 1 | 0 | 0 | 1 | 2 | 4 |
| Total | 23 | 11 | 24 | 58 | 85 | 201 |

**Chi-Square Tests**

| | Value | df | Asymptotic Significance (2-sided) |
|---|---|---|---|
| Pearson Chi-Square | 39,692[a] | 20 | ,005 |
| Likelihood Ratio | 44,723 | 20 | ,001 |
| Linear-by-Linear Association | 11,691 | 1 | <,001 |
| N of Valid Cases | 201 | | |

a. 17 cells (56,7%) have expected count less than 5. The minimum expected count is ,22.

**Symmetric Measures**

| | | Value | Asymptotic Standard Error[a] | Approximate T[b] | Approximate Significance |
|---|---|---|---|---|---|
| Nominal by Nominal | Phi | ,444 | | | ,005 |
| | Cramer's V | ,222 | | | ,005 |
| Ordinal by Ordinal | Kendall's tau-b | ,164 | ,058 | 2,795 | ,005 |
| | Gamma | ,215 | ,076 | 2,795 | ,005 |
| | Spearman Correlation | ,204 | ,070 | 2,945 | ,004[c] |
| Interval by Interval | Pearson's R | ,242 | ,069 | 3,515 | <,001[c] |
| N of Valid Cases | | 201 | | | |

a. Not assuming the null hypothesis.

b. Using the asymptotic standard error assuming the null hypothesis.

c. Based on normal approximation.

**What is your age? * Which sources of information are you using the most: Mass Media (e.g. newspaper, articles, journals, interviews, ...)**

**Crosstab**

Count

| | | Which sources of information are you using the most: Mass Media (e.g. newspaper, articles, journals, interviews, ...) | | | | | |
|---|---|---|---|---|---|---|---|
| | | Used the most | 2nd place | 3rd place | 4th place | Used least | Total |
| What is your age? | 18-24 years | 4 | 9 | 11 | 6 | 7 | 37 |
| | 24-34 years | 6 | 16 | 13 | 9 | 5 | 49 |
| | 35-44 years | 6 | 6 | 16 | 3 | 1 | 32 |
| | 45-54 years | 7 | 10 | 14 | 9 | 2 | 42 |
| | 55-64 years | 9 | 6 | 12 | 10 | 0 | 37 |
| | 65 years and older | 2 | 1 | 1 | 0 | 0 | 4 |
| Total | | 34 | 48 | 67 | 37 | 15 | 201 |

**Chi-Square Tests**

| | Value | df | Asymptotic Significance (2-sided) |
|---|---|---|---|
| Pearson Chi-Square | 26,962[a] | 20 | ,136 |
| Likelihood Ratio | 27,982 | 20 | ,110 |
| Linear-by-Linear Association | 4,356 | 1 | ,037 |
| N of Valid Cases | 201 | | |

a. 10 cells (33,3%) have expected count less than 5. The minimum expected count is ,30.

**Symmetric Measures**

| | | Value | Asymptotic Standard Error[a] | Approximate T[b] | Approximate Significance |
|---|---|---|---|---|---|
| Nominal by Nominal | Phi | ,366 | | | ,136 |
| | Cramer's V | ,183 | | | ,136 |
| Ordinal by Ordinal | Kendall's tau-b | -,095 | ,059 | -1,598 | ,110 |
| | Gamma | -,121 | ,075 | -1,598 | ,110 |
| | Spearman Correlation | -,119 | ,072 | -1,691 | ,092[c] |
| Interval by Interval | Pearson's R | -,148 | ,070 | -2,105 | ,037[c] |
| N of Valid Cases | | 201 | | | |

a. Not assuming the null hypothesis.

b. Using the asymptotic standard error assuming the null hypothesis.

c. Based on normal approximation.

**What is your age? * Which sources of information are you using the most: Social Media (e.g. Facebook, Instagram, ...)**

**Crosstab**

Count

| | | Which sources of information are you using the most: Social Media (e.g. Facebook, Instagram, ...) | | | | | |
|---|---|---|---|---|---|---|---|
| | | Used the most | 2nd place | 3rd place | 4th place | Used least | Total |
| What is your age? | 18-24 years | 8 | 9 | 7 | 5 | 8 | 37 |
| | 24-34 years | 4 | 7 | 10 | 13 | 15 | 49 |
| | 35-44 years | 1 | 1 | 2 | 13 | 15 | 32 |
| | 45-54 years | 1 | 2 | 5 | 19 | 15 | 42 |
| | 55-64 years | 0 | 2 | 5 | 11 | 19 | 37 |
| | 65 years and older | 0 | 0 | 0 | 3 | 1 | 4 |

| | | | | | | |
|---|---|---|---|---|---|---|
| Total | 14 | 21 | 29 | 64 | 73 | 201 |

**Chi-Square Tests**

| | Value | df | Asymptotic Significance (2-sided) |
|---|---|---|---|
| Pearson Chi-Square | 48,023[a] | 20 | <,001 |
| Likelihood Ratio | 47,987 | 20 | <,001 |
| Linear-by-Linear Association | 26,287 | 1 | <,001 |
| N of Valid Cases | 201 | | |

a. 15 cells (50,0%) have expected count less than 5. The minimum expected count is ,28.

**Symmetric Measures**

| | | Value | Asymptotic Standard Error[a] | Approximate T[b] | Approximate Significance |
|---|---|---|---|---|---|
| Nominal by Nominal | Phi | ,489 | | | <,001 |
| | Cramer's V | ,244 | | | <,001 |
| Ordinal by Ordinal | Kendall's tau-b | ,267 | ,057 | 4,642 | <,001 |
| | Gamma | ,345 | ,071 | 4,642 | <,001 |
| | Spearman Correlation | ,325 | ,067 | 4,849 | <,001[c] |
| Interval by Interval | Pearson's R | ,363 | ,061 | 5,488 | <,001[c] |
| N of Valid Cases | | 201 | | | |

a. Not assuming the null hypothesis.

b. Using the asymptotic standard error assuming the null hypothesis.

c. Based on normal approximation.

**Case Processing Summary**

| | Cases | | | | | |
|---|---|---|---|---|---|---|
| | Valid | | Missing | | Total | |
| | N | Percent | N | Percent | N | Percent |
| What is your highest level of education? * Which sources of information are you using the most: Personal experience/knowledge | 201 | 100,0% | 0 | 0,0% | 201 | 100,0% |
| What is your highest level of education? * Which sources of information are you using the most: Word of mouth (family & friends) | 201 | 100,0% | 0 | 0,0% | 201 | 100,0% |
| What is your highest level of education? * Which sources of information are you using the most: Corporate Media (e.g. company website) | 201 | 100,0% | 0 | 0,0% | 201 | 100,0% |
| What is your highest level of education? * Which sources of information are you using the most: Mass Media (e.g. newspaper, articles, journals, interviews, ...) | 201 | 100,0% | 0 | 0,0% | 201 | 100,0% |
| What is your highest level of education? * Which sources of information are you using the most: Social Media (e.g. Facebook, Instagram, ...) | 201 | 100,0% | 0 | 0,0% | 201 | 100,0% |

**What is your highest level of education? * Which sources of information are you using the most: Personal experience/knowledge**

**Crosstab**

Count

| | | Which sources of information are you using the most: Personal experience/knowledge | | | | | |
|---|---|---|---|---|---|---|---|
| | | Used the most | 2nd place | 3rd place | 4th place | Used least | Total |
| What is your highest level of education? | Less than a high school diploma | 4 | 3 | 1 | 1 | 0 | 9 |
| | High school degree or euqivalent | 16 | 15 | 8 | 8 | 5 | 52 |
| | Bachelor's degree (e.g. BA, BS) | 17 | 21 | 14 | 6 | 6 | 64 |
| | Master's degree (e.g. MA, MSC, MBA) | 20 | 14 | 19 | 5 | 3 | 61 |
| | Doctorate (e.g. PhD) | 3 | 6 | 4 | 1 | 1 | 15 |
| Total | | 60 | 59 | 46 | 21 | 15 | 201 |

**Chi-Square Tests**

| | Value | df | Asymptotic Significance (2-sided) |
|---|---|---|---|
| Pearson Chi-Square | 10,702[a] | 16 | ,828 |
| Likelihood Ratio | 11,385 | 16 | ,785 |
| Linear-by-Linear Association | ,006 | 1 | ,938 |
| N of Valid Cases | 201 | | |

a. 13 cells (52,0%) have expected count less than 5. The minimum expected count is ,67.

**Symmetric Measures**

| | | Value | Asymptotic Standard Error[a] | Approximate T[b] | Approximate Significance |
|---|---|---|---|---|---|
| Nominal by Nominal | Phi | ,231 | | | ,828 |
| | Cramer's V | ,115 | | | ,828 |
| Ordinal by Ordinal | Kendall's tau-b | ,013 | ,058 | ,214 | ,830 |
| | Gamma | ,017 | ,078 | ,214 | ,830 |
| | Spearman Correlation | ,015 | ,070 | ,216 | ,829[c] |
| Interval by Interval | Pearson's R | ,006 | ,068 | ,078 | ,938[c] |
| N of Valid Cases | | 201 | | | |

a. Not assuming the null hypothesis.

b. Using the asymptotic standard error assuming the null hypothesis.

c. Based on normal approximation.

**What is your highest level of education? * Which sources of information are you using the most: Word of mouth (family & friends)**

**Crosstab**

Count

| | | Which sources of information are you using the most: Word of mouth (family & friends) | | | | | |
|---|---|---|---|---|---|---|---|
| | | Used the most | 2nd place | 3rd place | 4th place | Used least | Total |
| What is your highest level of education? | Less than a high school diploma | 4 | 3 | 1 | 0 | 1 | 9 |
| | High school degree or euqivalent | 20 | 10 | 9 | 6 | 7 | 52 |
| | Bachelor's degree (e.g. BA, BS) | 20 | 20 | 13 | 9 | 2 | 64 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| | Master's degree (e.g. MA, MSC, MBA) | 19 | 24 | 10 | 6 | 2 | 61 |
| | Doctorate (e.g. PhD) | 7 | 5 | 2 | 0 | 1 | 15 |
| Total | | 70 | 62 | 35 | 21 | 13 | 201 |

**Chi-Square Tests**

| | Value | df | Asymptotic Significance (2-sided) |
|---|---|---|---|
| Pearson Chi-Square | 15,648[a] | 16 | ,478 |
| Likelihood Ratio | 17,754 | 16 | ,338 |
| Linear-by-Linear Association | 1,556 | 1 | ,212 |
| N of Valid Cases | 201 | | |

a. 12 cells (48,0%) have expected count less than 5. The minimum expected count is ,58.

**Symmetric Measures**

| | | Value | Asymptotic Standard Error[a] | Approximate T[b] | Approximate Significance |
|---|---|---|---|---|---|
| Nominal by Nominal | Phi | ,279 | | | ,478 |
| | Cramer's V | ,140 | | | ,478 |
| Ordinal by Ordinal | Kendall's tau-b | -,053 | ,061 | -,867 | ,386 |
| | Gamma | -,072 | ,082 | -,867 | ,386 |
| | Spearman Correlation | -,059 | ,072 | -,833 | ,406[c] |
| Interval by Interval | Pearson's R | -,088 | ,072 | -1,249 | ,213[c] |
| N of Valid Cases | | 201 | | | |

a. Not assuming the null hypothesis.

b. Using the asymptotic standard error assuming the null hypothesis.

c. Based on normal approximation.

**What is your highest level of education? * Which sources of information are you using the most: Corporate Media (e.g. company website)**

**Crosstab**

Count

| | | Which sources of information are you using the most: Corporate Media (e.g. company website) | | | | | |
|---|---|---|---|---|---|---|---|
| | | Used the most | 2nd place | 3rd place | 4th place | Used least | Total |
| What is your highest level of education? | Less than a high school diploma | 1 | 0 | 1 | 0 | 7 | 9 |
| | High school degree or euqivalent | 6 | 2 | 4 | 20 | 20 | 52 |
| | Bachelor's degree (e.g. BA, BS) | 9 | 4 | 10 | 15 | 26 | 64 |
| | Master's degree (e.g. MA, MSC, MBA) | 6 | 5 | 8 | 17 | 25 | 61 |
| | Doctorate (e.g. PhD) | 1 | 0 | 1 | 6 | 7 | 15 |
| Total | | 23 | 11 | 24 | 58 | 85 | 201 |

**Chi-Square Tests**

| | Value | df | Asymptotic Significance (2-sided) |
|---|---|---|---|
| Pearson Chi-Square | 13,795[a] | 16 | ,614 |
| Likelihood Ratio | 17,052 | 16 | ,382 |
| Linear-by-Linear Association | ,009 | 1 | ,922 |
| N of Valid Cases | 201 | | |

a. 12 cells (48,0%) have expected count less than 5. The minimum expected count is ,49.

**Symmetric Measures**

| | | Value | Asymptotic Standard Error[a] | Approximate T[b] | Approximate Significance |
|---|---|---|---|---|---|
| Nominal by Nominal | Phi | ,262 | | | ,614 |
| | Cramer's V | ,131 | | | ,614 |
| Ordinal by Ordinal | Kendall's tau-b | -,016 | ,058 | -,272 | ,786 |
| | Gamma | -,022 | ,081 | -,272 | ,786 |
| | Spearman Correlation | -,019 | ,069 | -,263 | ,793[c] |
| Interval by Interval | Pearson's R | -,007 | ,068 | -,097 | ,923[c] |
| N of Valid Cases | | 201 | | | |

a. Not assuming the null hypothesis.

b. Using the asymptotic standard error assuming the null hypothesis.

c. Based on normal approximation.

**What is your highest level of education? * Which sources of information are you using the most: Mass Media (e.g. newspaper, articles, journals, interviews, ...)**

**Crosstab**

Count

| | | Which sources of information are you using the most: Mass Media (e.g. newspaper, articles, journals, interviews, ...) | | | | | |
|---|---|---|---|---|---|---|---|
| | | Used the most | 2nd place | 3rd place | 4th place | Used least | Total |
| What is your highest level of education? | Less than a high school diploma | 0 | 2 | 5 | 2 | 0 | 9 |
| | High school degree or euqivalent | 7 | 13 | 17 | 9 | 6 | 52 |
| | Bachelor's degree (e.g. BA, BS) | 9 | 16 | 19 | 13 | 7 | 64 |
| | Master's degree (e.g. MA, MSC, MBA) | 14 | 14 | 19 | 12 | 2 | 61 |
| | Doctorate (e.g. PhD) | 4 | 3 | 7 | 1 | 0 | 15 |
| Total | | 34 | 48 | 67 | 37 | 15 | 201 |

**Chi-Square Tests**

| | Value | df | Asymptotic Significance (2-sided) |
|---|---|---|---|
| Pearson Chi-Square | 13,847[a] | 16 | ,610 |
| Likelihood Ratio | 17,093 | 16 | ,380 |
| Linear-by-Linear Association | 4,373 | 1 | ,037 |
| N of Valid Cases | 201 | | |

a. 12 cells (48,0%) have expected count less than 5. The minimum expected count is ,67.

**Symmetric Measures**

| | | Value | Asymptotic Standard Error[a] | Approximate T[b] | Approximate Significance |
|---|---|---|---|---|---|
| Nominal by Nominal | Phi | ,262 | | | ,610 |
| | Cramer's V | ,131 | | | ,610 |
| Ordinal by Ordinal | Kendall's tau-b | -,114 | ,054 | -2,118 | ,034 |
| | Gamma | -,152 | ,071 | -2,118 | ,034 |
| | Spearman Correlation | -,138 | ,066 | -1,965 | ,051[c] |
| Interval by Interval | Pearson's R | -,148 | ,062 | -2,109 | ,036[c] |
| N of Valid Cases | | 201 | | | |

a. Not assuming the null hypothesis.

b. Using the asymptotic standard error assuming the null hypothesis.

c. Based on normal approximation.

**What is your highest level of education? * Which sources of information are you using the most: Social Media (e.g. Facebook, Instagram, ...)**

**Crosstab**

Count

| | | Which sources of information are you using the most: Social Media (e.g. Facebook, Instagram, ...) | | | | | |
|---|---|---|---|---|---|---|---|
| | | Used the most | 2nd place | 3rd place | 4th place | Used least | Total |
| What is your highest level of education? | Less than a high school diploma | 0 | 1 | 1 | 6 | 1 | 9 |
| | High school degree or euqivalent | 3 | 12 | 14 | 9 | 14 | 52 |
| | Bachelor's degree (e.g. BA, BS) | 9 | 3 | 8 | 21 | 23 | 64 |
| | Master's degree (e.g. MA, MSC, MBA) | 2 | 4 | 5 | 21 | 29 | 61 |

| | | | | | | |
|---|---|---|---|---|---|---|
| | Doctorate (e.g. PhD) | 0 | 1 | 1 | 7 | 6 | 15 |
| Total | | 14 | 21 | 29 | 64 | 73 | 201 |

**Chi-Square Tests**

| | Value | df | Asymptotic Significance (2-sided) |
|---|---|---|---|
| Pearson Chi-Square | 39,862[a] | 16 | <,001 |
| Likelihood Ratio | 38,991 | 16 | ,001 |
| Linear-by-Linear Association | 10,399 | 1 | ,001 |
| N of Valid Cases | 201 | | |

a. 12 cells (48,0%) have expected count less than 5. The minimum expected count is ,63.

**Symmetric Measures**

| | | Value | Asymptotic Standard Error[a] | Approximate T[b] | Approximate Significance |
|---|---|---|---|---|---|
| Nominal by Nominal | Phi | ,445 | | | <,001 |
| | Cramer's V | ,223 | | | <,001 |
| Ordinal by Ordinal | Kendall's tau-b | ,203 | ,052 | 3,872 | <,001 |
| | Gamma | ,274 | ,069 | 3,872 | <,001 |
| | Spearman Correlation | ,249 | ,063 | 3,633 | <,001[c] |
| Interval by Interval | Pearson's R | ,228 | ,059 | 3,304 | ,001[c] |
| N of Valid Cases | | 201 | | | |

a. Not assuming the null hypothesis.

b. Using the asymptotic standard error assuming the null hypothesis.

c. Based on normal approximation.

## 8.5 Appendix 5: SPSS results H4-H6

**Case Processing Summary**

| | Cases | | | | | |
|---|---|---|---|---|---|---|
| | Valid | | Missing | | Total | |
| | N | Percent | N | Percent | N | Percent |
| Gender: What is your identity? * Overall, how familiar are you with the Pharmaceutical Industry? | 201 | 100,0% | 0 | 0,0% | 201 | 100,0% |

**Gender: What is your identity? * Overall, how familiar are you with the Pharmaceutical Industry? Crosstabulation**

Count

| | | Overall, how familiar are you with the Pharmaceutical Industry? | | | | |
|---|---|---|---|---|---|---|
| | | Very familiar | Somewhat familiar | Not familiar | Not at all familiar | Total |
| Gender: What is your identity? | Female | 7 | 17 | 49 | 17 | 90 |
| | Male | 12 | 15 | 68 | 15 | 110 |
| | Non-binary | 1 | 0 | 0 | 0 | 1 |
| Total | | 20 | 32 | 117 | 32 | 201 |

**Chi-Square Tests**

| | Value | df | Asymptotic Significance (2-sided) |
|---|---|---|---|
| Pearson Chi-Square | 11,761[a] | 6 | ,068 |
| Likelihood Ratio | 7,338 | 6 | ,291 |

| | | | |
|---|---|---|---|
| Linear-by-Linear Association | ,930 | 1 | ,335 |
| N of Valid Cases | 201 | | |

a. 4 cells (33,3%) have expected count less than 5. The minimum expected count is ,10.

**Symmetric Measures**

| | | Value | Asymptotic Standard Error[a] | Approximate T[b] | Approximate Significance |
|---|---|---|---|---|---|
| Nominal by Nominal | Phi | ,242 | | | ,068 |
| | Cramer's V | ,171 | | | ,068 |
| Ordinal by Ordinal | Kendall's tau-b | -,044 | ,067 | -,656 | ,512 |
| | Gamma | -,080 | ,121 | -,656 | ,512 |
| | Spearman Correlation | -,047 | ,072 | -,669 | ,504[c] |
| Interval by Interval | Pearson's R | -,068 | ,074 | -,964 | ,336[c] |
| N of Valid Cases | | 201 | | | |

a. Not assuming the null hypothesis.

b. Using the asymptotic standard error assuming the null hypothesis.

c. Based on normal approximation.

**Case Processing Summary**

| | Cases | | | | | |
|---|---|---|---|---|---|---|
| | Valid | | Missing | | Total | |
| | N | Percent | N | Percent | N | Percent |
| Overall, how familiar are you with the Pharmaceutical Industry? * What is your age? | 201 | 100,0% | 0 | 0,0% | 201 | 100,0% |

**Overall, how familiar are you with the Pharmaceutical Industry? * What is your age? Cross-tabulation**

Count

| | | What is your age? | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | 18-24 years | 24-34 years | 35-44 years | 45-54 years | 55-64 years | 65 years and older | Total |
| Overall, how familiar are you with the Pharmaceutical Industry? | Very familiar | 1 | 3 | 3 | 3 | 9 | 1 | 20 |
| | Somewhat familiar | 8 | 14 | 5 | 4 | 1 | 0 | 32 |
| | Not familiar | 21 | 25 | 19 | 26 | 23 | 3 | 117 |
| | Not at all familiar | 7 | 7 | 5 | 9 | 4 | 0 | 32 |
| Total | | 37 | 49 | 32 | 42 | 37 | 4 | 201 |

**Chi-Square Tests**

| | Value | df | Asymptotic Significance (2-sided) |
|---|---|---|---|
| Pearson Chi-Square | 26,256[a] | 15 | ,035 |
| Likelihood Ratio | 27,303 | 15 | ,026 |

| | | | |
|---|---|---|---|
| Linear-by-Linear Association | 1,005 | 1 | ,316 |
| N of Valid Cases | 201 | | |

a. 9 cells (37,5%) have expected count less than 5. The minimum expected count is ,40.

**Symmetric Measures**

| | | Value | Asymptotic Standard Error[a] | Approximate T[b] | Approximate Significance |
|---|---|---|---|---|---|
| Nominal by Nominal | Phi | ,361 | | | ,035 |
| | Cramer's V | ,209 | | | ,035 |
| Ordinal by Ordinal | Kendall's tau-b | -,020 | ,059 | -,332 | ,740 |
| | Gamma | -,028 | ,085 | -,332 | ,740 |
| | Spearman Correlation | -,024 | ,071 | -,341 | ,733[c] |
| Interval by Interval | Pearson's R | -,071 | ,071 | -1,003 | ,317[c] |
| N of Valid Cases | | 201 | | | |

a. Not assuming the null hypothesis.

b. Using the asymptotic standard error assuming the null hypothesis.

c. Based on normal approximation.

**Case Processing Summary**

| | Cases | | | | | |
|---|---|---|---|---|---|---|
| | Valid | | Missing | | Total | |
| | N | Percent | N | Percent | N | Percent |
| Overall, how familiar are you with the Pharmaceutical Industry? * What is your highest level of education? | 201 | 100,0% | 0 | 0,0% | 201 | 100,0% |

**Overall, how familiar are you with the Pharmaceutical Industry? * What is your highest level of education? Crosstabulation**

Count

| | | What is your highest level of education? | | | | | |
|---|---|---|---|---|---|---|---|
| | | Less than a high school diploma | High school degree or euqivalent | Bachelor's degree (e.g. BA, BS) | Master's degree (e.g. MA, MSC, MBA) | Doctorate (e.g. PhD) | Total |
| Overall, how familiar are you with the Pharmaceutical Industry? | Very familiar | 0 | 3 | 4 | 8 | 5 | 20 |
| | Somewhat familiar | 0 | 6 | 14 | 10 | 2 | 32 |
| | Not familiar | 5 | 31 | 36 | 40 | 5 | 117 |
| | Not at all familiar | 4 | 12 | 10 | 3 | 3 | 32 |
| Total | | 9 | 52 | 64 | 61 | 15 | 201 |

**Chi-Square Tests**

| | Value | df | Asymptotic Significance (2-sided) |
|---|---|---|---|
| Pearson Chi-Square | 28,408[a] | 12 | ,005 |
| Likelihood Ratio | 28,001 | 12 | ,006 |
| Linear-by-Linear Association | 14,281 | 1 | <,001 |
| N of Valid Cases | 201 | | |

a. 6 cells (30,0%) have expected count less than 5. The minimum expected count is ,90.

**Symmetric Measures**

| | | Value | Asymptotic Standard Error[a] | Approximate T[b] | Approximate Significance |
|---|---|---|---|---|---|
| Nominal by Nominal | Phi | ,376 | | | ,005 |
| | Cramer's V | ,217 | | | ,005 |
| Ordinal by Ordinal | Kendall's tau-b | -,219 | ,060 | -3,545 | <,001 |
| | Gamma | -,325 | ,088 | -3,545 | <,001 |
| | Spearman Correlation | -,252 | ,069 | -3,666 | <,001[c] |
| Interval by Interval | Pearson's R | -,267 | ,070 | -3,912 | <,001[c] |
| N of Valid Cases | | 201 | | | |

a. Not assuming the null hypothesis.

b. Using the asymptotic standard error assuming the null hypothesis.

c. Based on normal approximation.

**Case Processing Summary**

| | Cases | | | | | |
|---|---|---|---|---|---|---|
| | Valid | | Missing | | Total | |
| | N | Percent | N | Percent | N | Percent |
| Overall, how familiar are you with the Pharmaceutical Industry? * What is your status of employment? | 201 | 100,0% | 0 | 0,0% | 201 | 100,0% |

**Case Processing Summary**

| | Cases | | | | | |
|---|---|---|---|---|---|---|
| | Valid | | Missing | | Total | |
| | N | Percent | N | Percent | N | Percent |
| What was your general opinion about the Pharmaceutical Industry before COVID? * Are you using medications or similar products from the pharmaceutical industry on a regular basis? | 201 | 100,0% | 0 | 0,0% | 201 | 100,0% |

**What was your general opinion about the Pharmaceutical Industry before COVID? * Are you using medications or similar products from the pharmaceutical industry on a regular basis? Crosstabulation**

Count

| | Are you using medications or similar products from the pharmaceutical industry on a regular basis? | | | |
|---|---|---|---|---|
| | Not at all | Sometimes | Regularly | Total |

| | | | | | |
|---|---|---|---|---|---|
| What was your general opinion about the Pharmaceutical Industry before COVID? | Very positive | 6 | 7 | 0 | 13 |
| | Somewhat positive | 20 | 46 | 6 | 72 |
| | Somewhat negative | 13 | 54 | 10 | 77 |
| | Very negative | 29 | 8 | 2 | 39 |
| Total | | 68 | 115 | 18 | 201 |

**Chi-Square Tests**

| | Value | df | Asymptotic Significance (2-sided) |
|---|---|---|---|
| Pearson Chi-Square | 42,080[a] | 6 | <,001 |
| Likelihood Ratio | 42,662 | 6 | <,001 |
| Linear-by-Linear Association | 4,586 | 1 | ,032 |
| N of Valid Cases | 201 | | |

a. 3 cells (25,0%) have expected count less than 5. The minimum expected count is 1,16.

**Symmetric Measures**

| | | Value | Asymptotic Standard Error[a] | Approximate T[b] | Approximate Significance |
|---|---|---|---|---|---|
| Nominal by Nominal | Phi | ,458 | | | <,001 |
| | Cramer's V | ,324 | | | <,001 |
| Ordinal by Ordinal | Kendall's tau-b | -,143 | ,070 | -2,049 | ,040 |
| | Gamma | -,220 | ,105 | -2,049 | ,040 |

| | | | | | |
|---|---|---|---|---|---|
| | Spearman Correlation | -,162 | ,077 | -2,315 | ,022[c] |
| Interval by Interval | Pearson's R | -,151 | ,073 | -2,161 | ,032[c] |
| N of Valid Cases | | 201 | | | |

a. Not assuming the null hypothesis.

b. Using the asymptotic standard error assuming the null hypothesis.

c. Based on normal approximation.

**WhatwasyourgeneralopinionaboutthePharmaceuticalIndustrybeforeCOV*$Prej Crosstabulation**

| | | | $Prej[a] | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | | Do you agree: "Big bad Pharma" | Do you agree: Saving lives | Do you agree: Lack of transparency | Do you agree: Affordability of medications | Do you agree: Significant driver of innovation in healthcare | Do you agree: Public perception and trust | Total |
| What was your general opinion about the Pharmaceutical Industry before COVID? | Very positive | Count | 5 | 13 | 7 | 3 | 12 | 5 | 13 |
| | | % within Whatwasyourgeneralopinionaboutthe Pharmaceuticalindustrybefore COV | 38,5% | 100,0% | 53,8% | 23,1% | 92,3% | 38,5% | |
| | | % within $Prej | 3,1% | 7,6% | 4,3% | 1,9% | 7,9% | 2,9% | |
| | | % of Total | 2,5% | 6,5% | 3,5% | 1,5% | 6,0% | 2,5% | 6,5% |
| | | Count | 46 | 69 | 50 | 50 | 66 | 55 | 72 |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | Somewhat positive | % within Whatwasyourgeneralopinionaboutthe PharmaceuticalIndustrybeforeCOV | 63,9% | 95,8% | 69,4% | 69,4% | 91,7% | 76,4% | |
| | | % within $Prej | 28,2% | 40,6% | 30,9% | 31,6% | 43,7% | 31,8% | |
| | | % of Total | 22,9% | 34,3% | 24,9% | 24,9% | 32,8% | 27,4% | 35,8% |
| | Somewhat negative | Count | 73 | 69 | 68 | 66 | 56 | 75 | 77 |
| | | % within Whatwasyourgeneralopinionaboutthe PharmaceuticalIndustrybeforeCOV | 94,8% | 89,6% | 88,3% | 85,7% | 72,7% | 97,4% | |
| | | % within $Prej | 44,8% | 40,6% | 42,0% | 41,8% | 37,1% | 43,4% | |
| | | % of Total | 36,3% | 34,3% | 33,8% | 32,8% | 27,9% | 37,3% | 38,3% |
| | Very negative | Count | 39 | 19 | 37 | 39 | 17 | 38 | 39 |
| | | % within Whatwasyourgeneralopinionaboutthe PharmaceuticalIndustrybeforeCOV | 100,0% | 48,7% | 94,9% | 100,0% | 43,6% | 97,4% | |
| | | % within $Prej | 23,9% | 11,2% | 22,8% | 24,7% | 11,3% | 22,0% | |
| | | % of Total | 19,4% | 9,5% | 18,4% | 19,4% | 8,5% | 18,9% | 19,4% |
| Total | | Count | 163 | 170 | 162 | 158 | 151 | 173 | 201 |
| | | % of Total | 81,1% | 84,6% | 80,6% | 78,6% | 75,1% | 86,1% | 100,0% |

Percentages and totals are based on respondents.

a. Dichotomy group tabulated at value 0.

**Case Processing Summary**

| | Cases | | | | | |
|---|---|---|---|---|---|---|
| | Valid | | Missing | | Total | |
| | N | Percent | N | Percent | N | Percent |
| What was your general opinion about the Pharmaceutical Industry before COVID? * Do you agree: "Big bad Pharma" | 201 | 100,0% | 0 | 0,0% | 201 | 100,0% |
| What was your general opinion about the Pharmaceutical Industry before COVID? * Do you agree: Saving lives | 201 | 100,0% | 0 | 0,0% | 201 | 100,0% |
| What was your general opinion about the Pharmaceutical Industry before COVID? * Do you agree: Lack of transparency | 201 | 100,0% | 0 | 0,0% | 201 | 100,0% |
| What was your general opinion about the Pharmaceutical Industry before COVID? * Do you agree: Affordability of medications | 201 | 100,0% | 0 | 0,0% | 201 | 100,0% |
| What was your general opinion about the Pharmaceutical Industry before COVID? * Do you agree: Significant driver of innovation in healthcare | 201 | 100,0% | 0 | 0,0% | 201 | 100,0% |

| | | | | | | |
|---|---|---|---|---|---|---|
| What was your general opinion about the Pharmaceutical Industry before COVID? * Do you agree: Public perception and trust | 201 | 100,0% | 0 | 0,0% | 201 | 100,0% |

**What was your general opinion about the Pharmaceutical Industry before COVID? * Do you agree: "Big bad Pharma"**

**Crosstab**

Count

| | | Do you agree: "Big bad Pharma" | | | | |
|---|---|---|---|---|---|---|
| | | Strongly agree | Agree | Disagree | Strongly disagree | Total |
| What was your general opinion about the Pharmaceutical Industry before COVID? | Very positive | 1 | 4 | 5 | 3 | 13 |
| | Somewhat positive | 8 | 38 | 22 | 4 | 72 |
| | Somewhat negative | 32 | 41 | 4 | 0 | 77 |
| | Very negative | 29 | 10 | 0 | 0 | 39 |
| Total | | 70 | 93 | 31 | 7 | 201 |

**Chi-Square Tests**

| | Value | df | Asymptotic Significance (2-sided) |
|---|---|---|---|
| Pearson Chi-Square | 84,273[a] | 9 | <,001 |
| Likelihood Ratio | 86,059 | 9 | <,001 |
| Linear-by-Linear Association | 66,924 | 1 | <,001 |

| | | | |
|---|---|---|---|
| N of Valid Cases | 201 | | |

a. 6 cells (37,5%) have expected count less than 5. The minimum expected count is ,45.

**Symmetric Measures**

| | | Value | Asymptotic Standard Error[a] | Approximate T[b] | Approximate Significance |
|---|---|---|---|---|---|
| Nominal by Nominal | Phi | ,648 | | | <,001 |
| | Cramer's V | ,374 | | | <,001 |
| Ordinal by Ordinal | Kendall's tau-b | -,527 | ,044 | -10,860 | <,001 |
| | Gamma | -,750 | ,051 | -10,860 | <,001 |
| | Spearman Correlation | -,582 | ,048 | -10,087 | <,001[c] |
| Interval by Interval | Pearson's R | -,578 | ,046 | -10,004 | <,001[c] |
| N of Valid Cases | | 201 | | | |

a. Not assuming the null hypothesis.

b. Using the asymptotic standard error assuming the null hypothesis.

c. Based on normal approximation.

**What was your general opinion about the Pharmaceutical Industry before COVID? * Do you agree: Saving lives**

**Crosstab**

Count

| | | Do you agree: Saving lives | | | | |
|---|---|---|---|---|---|---|
| | | Strongly agree | Agree | Disagree | Strongly disagree | Total |
| What was your general opinion about the | Very positive | 12 | 1 | 0 | 0 | 13 |
| | Somewhat positive | 30 | 39 | 3 | 0 | 72 |

| | | | | | | |
|---|---|---|---|---|---|---|
| Pharmaceutical Industry before COVID? | Somewhat negative | 19 | 50 | 8 | 0 | 77 |
| | Very negative | 4 | 15 | 16 | 4 | 39 |
| Total | | 65 | 105 | 27 | 4 | 201 |

**Chi-Square Tests**

| | Value | df | Asymptotic Significance (2-sided) |
|---|---|---|---|
| Pearson Chi-Square | 78,056[a] | 9 | <,001 |
| Likelihood Ratio | 70,195 | 9 | <,001 |
| Linear-by-Linear Association | 51,297 | 1 | <,001 |
| N of Valid Cases | 201 | | |

a. 6 cells (37,5%) have expected count less than 5. The minimum expected count is ,26.

**Symmetric Measures**

| | | Value | Asymptotic Standard Error[a] | Approximate T[b] | Approximate Significance |
|---|---|---|---|---|---|
| Nominal by Nominal | Phi | ,623 | | | <,001 |
| | Cramer's V | ,360 | | | <,001 |
| Ordinal by Ordinal | Kendall's tau-b | ,437 | ,055 | 7,359 | <,001 |
| | Gamma | ,644 | ,070 | 7,359 | <,001 |

| | | | | | |
|---|---|---|---|---|---|
| | Spearman Correlation | ,478 | ,059 | 7,671 | <,001[c] |
| Interval by Interval | Pearson's R | ,506 | ,054 | 8,285 | <,001[c] |
| N of Valid Cases | | 201 | | | |

a. Not assuming the null hypothesis.

b. Using the asymptotic standard error assuming the null hypothesis.

c. Based on normal approximation.

**What was your general opinion about the Pharmaceutical Industry before COVID? * Do you agree: Lack of transparency**

**Crosstab**

Count

| | | Do you agree: Lack of transparency | | | | |
|---|---|---|---|---|---|---|
| | | Strongly agree | Agree | Disagree | Strongly disagree | Total |
| What was your general opinion about the Pharmaceutical Industry before COVID? | Very positive | 1 | 6 | 6 | 0 | 13 |
| | Somewhat positive | 12 | 38 | 21 | 1 | 72 |
| | Somewhat negative | 29 | 39 | 9 | 0 | 77 |
| | Very negative | 27 | 10 | 2 | 0 | 39 |
| Total | | 69 | 93 | 38 | 1 | 201 |

**Chi-Square Tests**

| | Value | df | Asymptotic Significance (2-sided) |
|---|---|---|---|
| Pearson Chi-Square | 44,828[a] | 9 | <,001 |
| Likelihood Ratio | 45,246 | 9 | <,001 |

| | | | |
|---|---|---|---|
| Linear-by-Linear Association | 38,193 | 1 | <,001 |
| N of Valid Cases | 201 | | |

a. 6 cells (37,5%) have expected count less than 5. The minimum expected count is ,06.

**Symmetric Measures**

| | | Value | Asymptotic Standard Error[a] | Approximate T[b] | Approximate Significance |
|---|---|---|---|---|---|
| Nominal by Nominal | Phi | ,472 | | | <,001 |
| | Cramer's V | ,273 | | | <,001 |
| Ordinal by Ordinal | Kendall's tau-b | -,398 | ,053 | -7,239 | <,001 |
| | Gamma | -,583 | ,071 | -7,239 | <,001 |
| | Spearman Correlation | -,443 | ,059 | -6,975 | <,001[c] |
| Interval by Interval | Pearson's R | -,437 | ,057 | -6,854 | <,001[c] |
| N of Valid Cases | | 201 | | | |

a. Not assuming the null hypothesis.

b. Using the asymptotic standard error assuming the null hypothesis.

c. Based on normal approximation.

**What was your general opinion about the Pharmaceutical Industry before COVID? * Do you agree: Affordability of medications**

**Crosstab**

Count

| | | Do you agree: Affordability of medications | | | | |
|---|---|---|---|---|---|---|
| | | Strongly agree | Agree | Disa-gree | Strongly dis-agree | Total |
| What was your general opinion about the Pharmaceutical Industry before COVID? | Very positive | 1 | 2 | 10 | 0 | 13 |
| | Somewhat positive | 6 | 44 | 22 | 0 | 72 |
| | Somewhat negative | 20 | 46 | 10 | 1 | 77 |
| | Very negative | 28 | 11 | 0 | 0 | 39 |
| Total | | 55 | 103 | 42 | 1 | 201 |

**Chi-Square Tests**

| | Value | df | Asymptotic Significance (2-sided) |
|---|---|---|---|
| Pearson Chi-Square | 84,123[a] | 9 | <,001 |
| Likelihood Ratio | 81,984 | 9 | <,001 |
| Linear-by-Linear Association | 58,181 | 1 | <,001 |
| N of Valid Cases | 201 | | |

a. 6 cells (37,5%) have expected count less than 5. The minimum expected count is ,06.

**Symmetric Measures**

| | | Value | Asymptotic Standard Error[a] | Approximate T[b] | Approximate Significance |
|---|---|---|---|---|---|
| Nominal by Nominal | Phi | ,647 | | | <,001 |
| | Cramer's V | ,374 | | | <,001 |
| Ordinal by Ordinal | Kendall's tau-b | -,491 | ,050 | -9,127 | <,001 |
| | Gamma | -,706 | ,060 | -9,127 | <,001 |
| | Spearman Correlation | -,540 | ,053 | -9,047 | <,001[c] |
| Interval by Interval | Pearson's R | -,539 | ,053 | -9,035 | <,001[c] |
| N of Valid Cases | | 201 | | | |

a. Not assuming the null hypothesis.

b. Using the asymptotic standard error assuming the null hypothesis.

c. Based on normal approximation.

**What was your general opinion about the Pharmaceutical Industry before COVID? * Do you agree: Significant driver of innovation in healthcare**

**Crosstab**

Count

| | | Do you agree: Significant driver of innovation in healthcare | | | | |
|---|---|---|---|---|---|---|
| | | Strongly agree | Agree | Disagree | Strongly disagree | Total |
| What was your general opinion about the Pharmaceutical | Very positive | 11 | 1 | 1 | 0 | 13 |
| | Somewhat positive | 30 | 36 | 5 | 1 | 72 |

| | | | | | | |
|---|---|---|---|---|---|---|
| Industry before COVID? | Somewhat negative | 12 | 44 | 21 | 0 | 77 |
| | Very negative | 3 | 14 | 16 | 6 | 39 |
| Total | | 56 | 95 | 43 | 7 | 201 |

**Chi-Square Tests**

| | Value | df | Asymptotic Significance (2-sided) |
|---|---|---|---|
| Pearson Chi-Square | 73,234[a] | 9 | <,001 |
| Likelihood Ratio | 70,073 | 9 | <,001 |
| Linear-by-Linear Association | 50,419 | 1 | <,001 |
| N of Valid Cases | 201 | | |

a. 6 cells (37,5%) have expected count less than 5. The minimum expected count is ,45.

**Symmetric Measures**

| | | Value | Asymptotic Standard Error[a] | Approximate T[b] | Approximate Significance |
|---|---|---|---|---|---|
| Nominal by Nominal | Phi | ,604 | | | <,001 |
| | Cramer's V | ,348 | | | <,001 |
| Ordinal by Ordinal | Kendall's tau-b | ,451 | ,053 | 7,996 | <,001 |
| | Gamma | ,643 | ,068 | 7,996 | <,001 |
| | Spearman Correlation | ,497 | ,058 | 8,082 | <,001[c] |
| Interval by Interval | Pearson's R | ,502 | ,058 | 8,190 | <,001[c] |
| N of Valid Cases | | 201 | | | |

a. Not assuming the null hypothesis.

b. Using the asymptotic standard error assuming the null hypothesis.

c. Based on normal approximation.

**What was your general opinion about the Pharmaceutical Industry before COVID? * Do you agree: Public perception and trust**

**Crosstab**

Count

| | | Do you agree: Public perception and trust | | | |
|---|---|---|---|---|---|
| | | Strongly agree | Agree | Disagree | Total |
| What was your general opinion about the Pharmaceutical Industry before COVID? | Very positive | 1 | 4 | 8 | 13 |
| | Somewhat positive | 11 | 44 | 17 | 72 |
| | Somewhat negative | 25 | 50 | 2 | 77 |
| | Very negative | 29 | 9 | 1 | 39 |
| Total | | 66 | 107 | 28 | 201 |

**Chi-Square Tests**

| | Value | df | Asymptotic Significance (2-sided) |
|---|---|---|---|
| Pearson Chi-Square | 77,171[a] | 6 | <,001 |
| Likelihood Ratio | 71,298 | 6 | <,001 |
| Linear-by-Linear Association | 55,335 | 1 | <,001 |
| N of Valid Cases | 201 | | |

a. 2 cells (16,7%) have expected count less than 5. The minimum expected count is 1,81.

**Symmetric Measures**

| | | Value | Asymptotic Standard Error[a] | Approximate T[b] | Approximate Significance |
|---|---|---|---|---|---|
| Nominal by Nominal | Phi | ,620 | | | <,001 |
| | Cramer's V | ,438 | | | <,001 |
| Ordinal by Ordinal | Kendall's tau-b | -,477 | ,053 | -8,343 | <,001 |
| | Gamma | -,699 | ,066 | -8,343 | <,001 |
| | Spearman Correlation | -,517 | ,057 | -8,512 | <,001[c] |
| Interval by Interval | Pearson's R | -,526 | ,056 | -8,725 | <,001[c] |
| N of Valid Cases | | 201 | | | |

a. Not assuming the null hypothesis.

b. Using the asymptotic standard error assuming the null hypothesis.

b. Based on normal approximation.

## 8.6 Appendix 6: SPSS results H7-H10

**Case Processing Summary**

| | Cases | | | | | |
|---|---|---|---|---|---|---|
| | Valid | | Missing | | Total | |
| | N | Percent | N | Percent | N | Percent |
| Overall, how much has your perception of the pharmaceutical industry changed since the onset of the COVID-19 pandemic? * Gender: What is your identity? | 201 | 100,0% | 0 | 0,0% | 201 | 100,0% |
| Overall, how much has your perception of the pharmaceutical industry changed since the onset of the COVID-19 pandemic? * What is your age? | 201 | 100,0% | 0 | 0,0% | 201 | 100,0% |
| Overall, how much has your perception of the pharmaceutical industry changed since the onset of the COVID-19 pandemic? * What is your highest level of education? | 201 | 100,0% | 0 | 0,0% | 201 | 100,0% |
| Overall, how much has your perception of the pharmaceutical industry changed since the onset of the COVID-19 pandemic? * What is your status of employment? | 201 | 100,0% | 0 | 0,0% | 201 | 100,0% |

**Overall, how much has your perception of the pharmaceutical industry changed since the onset of the COVID-19 pandemic? * Gender: What is your identity?**

**Crosstab**

Count

| | | Gender: What is your identity? | | | |
|---|---|---|---|---|---|
| | | Female | Male | Non-binary | Total |
| Overall, how much has your perception of the pharmaceutical industry changed since the onset of the COVID-19 pandemic? | Changed significantly | 10 | 16 | 0 | 26 |
| | Changed | 32 | 51 | 0 | 83 |
| | Somewhat changed | 24 | 20 | 0 | 44 |
| | Not changed at all | 24 | 23 | 1 | 48 |
| Total | | 90 | 110 | 1 | 201 |

**Chi-Square Tests**

| | Value | df | Asymptotic Significance (2-sided) |
|---|---|---|---|
| Pearson Chi-Square | 7,370[a] | 6 | ,288 |
| Likelihood Ratio | 7,048 | 6 | ,316 |
| Linear-by-Linear Association | 1,781 | 1 | ,182 |
| N of Valid Cases | 201 | | |

a. 4 cells (33,3%) have expected count less than 5. The minimum expected count is ,13.

**Symmetric Measures**

| | | Value | Asymptotic Standard Error[a] | Approximate T[b] | Approximate Significance |
|---|---|---|---|---|---|
| Nominal by Nominal | Phi | ,191 | | | ,288 |
| | Cramer's V | ,135 | | | ,288 |

| | | | | | |
|---|---|---|---|---|---|
| Ordinal by Ordinal | Kendall's tau-b | -,099 | ,065 | -1,515 | ,130 |
| | Gamma | -,164 | ,108 | -1,515 | ,130 |
| | Spearman Correlation | -,107 | ,071 | -1,518 | ,131[c] |
| Interval by Interval | Pearson's R | -,094 | ,072 | -1,337 | ,183[c] |
| N of Valid Cases | | 201 | | | |

a. Not assuming the null hypothesis.

b. Using the asymptotic standard error assuming the null hypothesis.

c. Based on normal approximation.

**Overall, how much has your perception of the pharmaceutical industry changed since the onset of the COVID-19 pandemic? * What is your age?**

**Crosstab**

Count

| | | What is your age? | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | 18-24 years | 24-34 years | 35-44 years | 45-54 years | 55-64 years | 65 years and older | Total |
| Overall, how much has your perception of the pharmaceutical industry changed since the onset of the COVID-19 pandemic? | Changed significantly | 4 | 10 | 3 | 3 | 5 | 1 | 26 |
| | Changed | 12 | 23 | 16 | 15 | 16 | 1 | 83 |
| | Somewhat changed | 16 | 12 | 4 | 8 | 3 | 1 | 44 |
| | Not changed at all | 5 | 4 | 9 | 16 | 13 | 1 | 48 |
| Total | | 37 | 49 | 32 | 42 | 37 | 4 | 201 |

**Chi-Square Tests**

| | Value | df | Asymptotic Significance (2-sided) |
|---|---|---|---|
| Pearson Chi-Square | 31,408[a] | 15 | ,008 |
| Likelihood Ratio | 32,098 | 15 | ,006 |
| Linear-by-Linear Association | 2,797 | 1 | ,094 |
| N of Valid Cases | 201 | | |

a. 7 cells (29,2%) have expected count less than 5. The minimum expected count is ,52.

**Symmetric Measures**

| | | Value | Asymptotic Standard Error[a] | Approximate T[b] | Approximate Significance |
|---|---|---|---|---|---|
| Nominal by Nominal | Phi | ,395 | | | ,008 |
| | Cramer's V | ,228 | | | ,008 |
| Ordinal by Ordinal | Kendall's tau-b | ,080 | ,059 | 1,357 | ,175 |
| | Gamma | ,104 | ,077 | 1,357 | ,175 |
| | Spearman Correlation | ,100 | ,071 | 1,412 | ,159[c] |
| Interval by Interval | Pearson's R | ,118 | ,070 | 1,680 | ,095[c] |
| N of Valid Cases | | 201 | | | |

a. Not assuming the null hypothesis.

b. Using the asymptotic standard error assuming the null hypothesis.

c. Based on normal approximation.

**Overall, how much has your perception of the pharmaceutical industry changed since the onset of the COVID-19 pandemic? * What is your highest level of education?**

**Crosstab**

Count

| | | What is your highest level of education? | | | | | |
|---|---|---|---|---|---|---|---|
| | | Less than a high school diploma | High school degree or euqivalent | Bachelor's degree (e.g. BA, BS) | Master's degree (e.g. MA, MSC, MBA) | Doctorate (e.g. PhD) | Total |
| Overall, how much has your perception of the pharmaceutical industry changed since the onset of the COVID-19 pandemic? | Changed significantly | 0 | 3 | 12 | 8 | 3 | 26 |
| | Changed | 3 | 21 | 25 | 30 | 4 | 83 |
| | Somewhat changed | 1 | 14 | 15 | 11 | 3 | 44 |
| | Not changed at all | 5 | 14 | 12 | 12 | 5 | 48 |
| Total | | 9 | 52 | 64 | 61 | 15 | 201 |

**Chi-Square Tests**

| | Value | df | Asymptotic Significance (2-sided) |
|---|---|---|---|
| Pearson Chi-Square | 14,694[a] | 12 | ,259 |
| Likelihood Ratio | 15,250 | 12 | ,228 |
| Linear-by-Linear Association | 3,290 | 1 | ,070 |
| N of Valid Cases | 201 | | |

a. 7 cells (35,0%) have expected count less than 5. The minimum expected count is 1,16.

**Symmetric Measures**

| | | Value | Asymptotic Standard Error[a] | Approximate T[b] | Approximate Significance |
|---|---|---|---|---|---|
| Nominal by Nominal | Phi | ,270 | | | ,259 |
| | Cramer's V | ,156 | | | ,259 |
| Ordinal by Ordinal | Kendall's tau-b | -,109 | ,060 | -1,798 | ,072 |
| | Gamma | -,150 | ,083 | -1,798 | ,072 |
| | Spearman Correlation | -,127 | ,071 | -1,809 | ,072[c] |
| Interval by Interval | Pearson's R | -,128 | ,072 | -1,824 | ,070[c] |
| N of Valid Cases | | 201 | | | |

a. Not assuming the null hypothesis.

b. Using the asymptotic standard error assuming the null hypothesis.

c. Based on normal approximation.

**Overall, how much has your perception of the pharmaceutical industry changed since the onset of the COVID-19 pandemic? * What is your status of employment?**

**Crosstab**

Count

| | | What is your status of employment? | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | Employed, working full-time | Employed, working part-time | Not employed, looking for work | Not employed, NOT looking for work | Retired | Student/working student | Total |
| Overall, how much has your perception of the pharmaceutical industry changed since the onset of the COVID-19 pandemic? | Changed significantly | 10 | 5 | 5 | 3 | 1 | 2 | 26 |
| | Changed | 37 | 24 | 8 | 5 | 3 | 6 | 83 |
| | Somewhat changed | 16 | 14 | 6 | 3 | 1 | 4 | 44 |
| | Not changed at all | 23 | 15 | 8 | 2 | 0 | 0 | 48 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Total | 86 | 58 | 27 | 13 | 5 | 12 | 201 |

**Chi-Square Tests**

| | Value | df | Asymptotic Significance (2-sided) |
|---|---|---|---|
| Pearson Chi-Square | 11,087[a] | 15 | ,746 |
| Likelihood Ratio | 14,916 | 15 | ,457 |
| Linear-by-Linear Association | 3,369 | 1 | ,066 |
| N of Valid Cases | 201 | | |

a. 12 cells (50,0%) have expected count less than 5. The minimum expected count is ,65.

**Symmetric Measures**

| | | Value | Asymptotic Standard Error[a] | Approximate T[b] | Approximate Significance |
|---|---|---|---|---|---|
| Nominal by Nominal | Phi | ,235 | | | ,746 |
| | Cramer's V | ,136 | | | ,746 |
| Ordinal by Ordinal | Kendall's tau-b | -,068 | ,059 | -1,165 | ,244 |
| | Gamma | -,096 | ,082 | -1,165 | ,244 |
| | Spearman Correlation | -,082 | ,069 | -1,154 | ,250[c] |
| Interval by Interval | Pearson's R | -,130 | ,059 | -1,847 | ,066[c] |
| N of Valid Cases | | 201 | | | |

a. Not assuming the null hypothesis.

b. Using the asymptotic standard error assuming the null hypothesis.

c. Based on normal approximation.

**Case Processing Summary**

| | Cases | | | | | |
|---|---|---|---|---|---|---|
| | Valid | | Missing | | Total | |
| | N | Percent | N | Percent | N | Percent |
| In which way has your perception of the pharmaceutical industry changed after the COVID-19 pandemic? * In your opinion, how transparent do you think pharmaceutical companies have been in sharing information about the development, testing, and side effects of COVID-19 vaccines and treatments? | 153 | 76,1% | 48 | 23,9% | 201 | 100,0% |

**In which way has your perception of the pharmaceutical industry changed after the COVID-19 pandemic? * In your opinion, how transparent do you think pharmaceutical companies have been in sharing information about the development, testing, and side effects of COVID-19 vaccines and treatments?**

**Crosstabulation**

Count

| | | In your opinion, how transparent do you think pharmaceutical companies have been in sharing information about the development, testing, and side effects of COVID-19 vaccines and treatments? | | | | |
|---|---|---|---|---|---|---|
| | | Very transparent | Somewhat transparent | Not really transparent | Not transparent at all | Total |
| In which way has your perception of the pharmaceutical industry | Very positive | 9 | 9 | 4 | 2 | 24 |
| | Somewhat positive | 2 | 48 | 38 | 13 | 101 |

| | | | | | | |
|---|---|---|---|---|---|---|
| changed after the COVID-19 pandemic? | Somewhat negative | 0 | 4 | 10 | 7 | 21 |
| | Very negative | 0 | 0 | 2 | 5 | 7 |
| Total | | 11 | 61 | 54 | 27 | 153 |

**Chi-Square Tests**

| | Value | df | Asymptotic Significance (2-sided) |
|---|---|---|---|
| Pearson Chi-Square | 63,482[a] | 9 | <,001 |
| Likelihood Ratio | 50,103 | 9 | <,001 |
| Linear-by-Linear Association | 33,343 | 1 | <,001 |
| N of Valid Cases | 153 | | |

a. 8 cells (50,0%) have expected count less than 5. The minimum expected count is ,50.

**Symmetric Measures**

| | | Value | Asymptotic Standard Error[a] | Approximate T[b] | Approximate Significance |
|---|---|---|---|---|---|
| Nominal by Nominal | Phi | ,644 | | | <,001 |
| | Cramer's V | ,372 | | | <,001 |
| Ordinal by Ordinal | Kendall's tau-b | ,409 | ,066 | 5,498 | <,001 |
| | Gamma | ,635 | ,090 | 5,498 | <,001 |
| | Spearman Correlation | ,446 | ,072 | 6,116 | <,001[c] |
| Interval by Interval | Pearson's R | ,468 | ,068 | 6,514 | <,001[c] |
| N of Valid Cases | | 153 | | | |

a. Not assuming the null hypothesis.

b. Using the asymptotic standard error assuming the null hypothesis.

c. Based on normal approximation.

**Case Processing Summary**

| | Cases | | | | | |
|---|---|---|---|---|---|---|
| | Valid | | Missing | | Total | |
| | N | Percent | N | Percent | N | Percent |
| In which way has your perception of the pharmaceutical industry changed after the COVID-19 pandemic? * How confident are you in the safety and efficacy of COVID-19 vaccines developed by pharmaceutical companies? | 153 | 76,1% | 48 | 23,9% | 201 | 100,0% |

**In which way has your perception of the pharmaceutical industry changed after the COVID-19 pandemic? * How confident are you in the safety and efficacy of COVID-19 vaccines developed by pharmaceutical companies? Crosstabulation**

Count

| | How confident are you in the safety and efficacy of COVID-19 vaccines developed by pharmaceutical companies? | | | | |
|---|---|---|---|---|---|
| | Very confident | Somewhat confident | Not really confident | Not confident at all | Total |
| Very positive | 21 | 2 | 1 | 0 | 24 |

| | | | | | | |
|---|---|---|---|---|---|---|
| In which way has your perception of the pharmaceutical industry changed after the COVID-19 pandemic? | Somewhat positive | 23 | 68 | 10 | 0 | 101 |
| | Somewhat negative | 2 | 10 | 8 | 1 | 21 |
| | Very negative | 0 | 0 | 2 | 5 | 7 |
| Total | | 46 | 80 | 21 | 6 | 153 |

**Chi-Square Tests**

| | Value | df | Asymptotic Significance (2-sided) |
|---|---|---|---|
| Pearson Chi-Square | 149,326[a] | 9 | <,001 |
| Likelihood Ratio | 92,412 | 9 | <,001 |
| Linear-by-Linear Association | 65,614 | 1 | <,001 |
| N of Valid Cases | 153 | | |

a. 9 cells (56,3%) have expected count less than 5. The minimum expected count is ,27.

**Symmetric Measures**

| | | Value | Asymptotic Standard Error[a] | Approximate T[b] | Approximate Significance |
|---|---|---|---|---|---|
| Nominal by Nominal | Phi | ,988 | | | <,001 |
| | Cramer's V | ,570 | | | <,001 |
| Ordinal by Ordinal | Kendall's tau-b | ,559 | ,062 | 7,205 | <,001 |
| | Gamma | ,818 | ,070 | 7,205 | <,001 |
| | Spearman Correlation | ,591 | ,065 | 9,012 | <,001[c] |

| | | | | |
|---|---|---|---|---|
| Interval by Inter- Pearson's R val | ,657 | ,061 | 10,709 | <,001[c] |
| N of Valid Cases | 153 | | | |

a. Not assuming the null hypothesis.

b. Using the asymptotic standard error assuming the null hypothesis.

c. Based on normal approximation.

**Case Processing Summary**

| | Cases | | | | | |
|---|---|---|---|---|---|---|
| | Valid | | Missing | | Total | |
| | N | Percent | N | Percent | N | Percent |
| In which way has your perception of the pharmaceutical industry changed after the COVID-19 pandemic? * Which source covid: Personal experience/knowledge | 153 | 76,1% | 48 | 23,9% | 201 | 100,0% |
| In which way has your perception of the pharmaceutical industry changed after the COVID-19 pandemic? * Which source covid: Word of mouth (family & friends) | 153 | 76,1% | 48 | 23,9% | 201 | 100,0% |
| In which way has your perception of the pharmaceutical industry changed after the COVID-19 pandemic? * Which source covid: Corporate Media (e.g. company website) | 153 | 76,1% | 48 | 23,9% | 201 | 100,0% |

| | | | | | | |
|---|---|---|---|---|---|---|
| In which way has your perception of the pharmaceutical industry changed after the COVID-19 pandemic? * Which source covid: Mass Media (e.g. newspaper, articles, journals, interviews, ...) | 153 | 76,1% | 48 | 23,9% | 201 | 100,0% |
| In which way has your perception of the pharmaceutical industry changed after the COVID-19 pandemic? * Which source covid: Social Media (e.g. Facebook, Instagram, ...) | 153 | 76,1% | 48 | 23,9% | 201 | 100,0% |
| In which way has your perception of the pharmaceutical industry changed after the COVID-19 pandemic? * Which source covid: Sources distributed by the Government | 153 | 76,1% | 48 | 23,9% | 201 | 100,0% |

**In which way has your perception of the pharmaceutical industry changed after the COVID-19 pandemic? * Which source covid: Personal experience/knowledge**

**Crosstab**

Count

| | | Which source covid: Personal experience/knowledge | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | Used the most | 2nd place | 3rd place | 4th place | 5th palce | Used least | Total |
| In which way has your perception of the pharmaceutical industry changed after the COVID-19 pandemic? | Very positive | 2 | 5 | 0 | 8 | 6 | 3 | 24 |
| | Somewhat positive | 4 | 6 | 11 | 43 | 24 | 13 | 101 |
| | Somewhat negative | 2 | 3 | 4 | 5 | 3 | 4 | 21 |
| | Very negative | 1 | 2 | 3 | 0 | 0 | 1 | 7 |
| Total | | 9 | 16 | 18 | 56 | 33 | 21 | 153 |

**Chi-Square Tests**

| | Value | df | Asymptotic Significance (2-sided) |
|---|---|---|---|
| Pearson Chi-Square | 26,166[a] | 15 | ,036 |
| Likelihood Ratio | 29,465 | 15 | ,014 |
| Linear-by-Linear Association | 2,136 | 1 | ,144 |
| N of Valid Cases | 153 | | |

a. 15 cells (62,5%) have expected count less than 5. The minimum expected count is ,41.

**Symmetric Measures**

| | | Value | Asymptotic Standard Error[a] | Approximate T[b] | Approximate Significance |
|---|---|---|---|---|---|
| Nominal by Nominal | Phi | ,414 | | | ,036 |
| | Cramer's V | ,239 | | | ,036 |
| Ordinal by Ordinal | Kendall's tau-b | -,087 | ,081 | -1,075 | ,282 |
| | Gamma | -,132 | ,122 | -1,075 | ,282 |
| | Spearman Correlation | -,099 | ,093 | -1,226 | ,222[c] |
| Interval by Interval | Pearson's R | -,119 | ,096 | -1,467 | ,144[c] |
| N of Valid Cases | | 153 | | | |

a. Not assuming the null hypothesis.

b. Using the asymptotic standard error assuming the null hypothesis.

c. Based on normal approximation.

**In which way has your perception of the pharmaceutical industry changed after the COVID-19 pandemic? * Which source covid: Word of mouth (family & friends)**

**Crosstab**

Count

| | | Which source covid: Word of mouth (family & friends) | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | Used the most | 2nd place | 3rd place | 4th place | 5th place | Used least | Total |
| In which way has your perception of the pharmaceutical industry changed after the COVID-19 pandemic? | Very positive | 5 | 2 | 10 | 4 | 3 | 0 | 24 |
| | Somewhat positive | 7 | 22 | 38 | 19 | 11 | 4 | 101 |
| | Somewhat negative | 2 | 4 | 6 | 6 | 3 | 0 | 21 |
| | Very negative | 1 | 1 | 1 | 3 | 1 | 0 | 7 |
| Total | | 15 | 29 | 55 | 32 | 18 | 4 | 153 |

**Chi-Square Tests**

| | Value | df | Asymptotic Significance (2-sided) |
|---|---|---|---|
| Pearson Chi-Square | 12,345[a] | 15 | ,653 |
| Likelihood Ratio | 13,185 | 15 | ,588 |
| Linear-by-Linear Association | ,671 | 1 | ,413 |
| N of Valid Cases | 153 | | |

a. 16 cells (66,7%) have expected count less than 5. The minimum expected count is ,18.

**Symmetric Measures**

| | | Value | Asymptotic Standard Error[a] | Approximate T[b] | Approximate Significance |
|---|---|---|---|---|---|
| Nominal by Nominal | Phi | ,284 | | | ,653 |
| | Cramer's V | ,164 | | | ,653 |
| Ordinal by Ordinal | Kendall's tau-b | ,061 | ,072 | ,847 | ,397 |
| | Gamma | ,096 | ,113 | ,847 | ,397 |
| | Spearman Correlation | ,072 | ,084 | ,883 | ,379[c] |
| Interval by Interval | Pearson's R | ,066 | ,083 | ,818 | ,414[c] |
| N of Valid Cases | | 153 | | | |

a. Not assuming the null hypothesis.

b. Using the asymptotic standard error assuming the null hypothesis.

c. Based on normal approximation.

**In which way has your perception of the pharmaceutical industry changed after the COVID-19 pandemic? * Which source covid: Corporate Media (e.g. company website)**

**Crosstab**

Count

| | | Which source covid: Corporate Media (e.g. company website) | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | Used the most | 2nd place | 3rd place | 4th place | 5th place | Used least | Total |
| In which way has your perception of the pharmaceutical industry changed after the COVID-19 pandemic? | Very positive | 1 | 2 | 2 | 6 | 2 | 11 | 24 |
| | Somewhat positive | 2 | 8 | 8 | 7 | 22 | 54 | 101 |
| | Somewhat negative | 1 | 1 | 3 | 4 | 6 | 6 | 21 |
| | Very negative | 0 | 1 | 0 | 0 | 2 | 4 | 7 |
| Total | | 4 | 12 | 13 | 17 | 32 | 75 | 153 |

**Chi-Square Tests**

| | Value | df | Asymptotic Significance (2-sided) |
|---|---|---|---|
| Pearson Chi-Square | 15,730[a] | 15 | ,400 |
| Likelihood Ratio | 16,717 | 15 | ,336 |
| Linear-by-Linear Association | ,014 | 1 | ,906 |
| N of Valid Cases | 153 | | |

a. 16 cells (66,7%) have expected count less than 5. The minimum expected count is ,18.

**Symmetric Measures**

| | | Value | Asymptotic Standard Error[a] | Approximate T[b] | Approximate Significance |
|---|---|---|---|---|---|
| Nominal by Nominal | Phi | ,321 | | | ,400 |
| | Cramer's V | ,185 | | | ,400 |
| Ordinal by Ordinal | Kendall's tau-b | -,020 | ,073 | -,280 | ,779 |
| | Gamma | -,033 | ,117 | -,280 | ,779 |
| | Spearman Correlation | -,022 | ,084 | -,271 | ,787[c] |
| Interval by Interval | Pearson's R | ,010 | ,083 | ,117 | ,907[c] |
| N of Valid Cases | | 153 | | | |

a. Not assuming the null hypothesis.

b. Using the asymptotic standard error assuming the null hypothesis.

c. Based on normal approximation.

**In which way has your perception of the pharmaceutical industry changed after the COVID-19 pandemic? * Which source covid: Mass Media (e.g. newspaper, articles, journals, interviews, ...)**

**Crosstab**

Count

| | | Which source covid: Mass Media (e.g. newspaper, articles, journals, interviews, ...) | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | Used the most | 2nd place | 3rd place | 4th place | 5th place | Used least | Total |
| In which way has your perception of the pharmaceutical industry | Very positive | 4 | 9 | 8 | 0 | 3 | 0 | 24 |
| | Somewhat positive | 31 | 28 | 25 | 10 | 6 | 1 | 101 |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| changed after the COVID-19 pandemic? | Somewhat negative | 7 | 5 | 3 | 2 | 3 | 1 | 21 |
| | Very negative | 3 | 2 | 1 | 1 | 0 | 0 | 7 |
| Total | | 45 | 44 | 37 | 13 | 12 | 2 | 153 |

**Chi-Square Tests**

| | Value | df | Asymptotic Significance (2-sided) |
|---|---|---|---|
| Pearson Chi-Square | 12,521[a] | 15 | ,639 |
| Likelihood Ratio | 14,653 | 15 | ,477 |
| Linear-by-Linear Association | ,168 | 1 | ,682 |
| N of Valid Cases | 153 | | |

a. 13 cells (54,2%) have expected count less than 5. The minimum expected count is ,09.

**Symmetric Measures**

| | | Value | Asymptotic Standard Error[a] | Approximate T[b] | Approximate Significance |
|---|---|---|---|---|---|
| Nominal by Nominal | Phi | ,286 | | | ,639 |
| | Cramer's V | ,165 | | | ,639 |
| Ordinal by Ordinal | Kendall's tau-b | -,045 | ,070 | -,645 | ,519 |
| | Gamma | -,072 | ,111 | -,645 | ,519 |
| | Spearman Correlation | -,053 | ,081 | -,652 | ,515[c] |
| Interval by Interval | Pearson's R | -,033 | ,081 | -,409 | ,683[c] |
| N of Valid Cases | | 153 | | | |

a. Not assuming the null hypothesis.

b. Using the asymptotic standard error assuming the null hypothesis.

c. Based on normal approximation.

**In which way has your perception of the pharmaceutical industry changed after the COVID-19 pandemic? * Which source covid: Social Media (e.g. Facebook, Instagram, ...)**

**Crosstab**

Count

| | | Which source covid: Social Media (e.g. Facebook, Instagram, ...) | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | Used the most | 2nd place | 3rd place | 4th place | 5th place | Used least | Total |
| In which way has your perception of the pharmaceutical industry changed after the COVID-19 pandemic? | Very positive | 0 | 0 | 1 | 4 | 10 | 9 | 24 |
| | Somewhat positive | 7 | 3 | 9 | 19 | 37 | 26 | 101 |
| | Somewhat negative | 2 | 4 | 3 | 3 | 0 | 9 | 21 |
| | Very negative | 0 | 1 | 1 | 3 | 1 | 1 | 7 |
| Total | | 9 | 8 | 14 | 29 | 48 | 45 | 153 |

**Chi-Square Tests**

| | Value | df | Asymptotic Significance (2-sided) |
|---|---|---|---|
| Pearson Chi-Square | 29,150[a] | 15 | ,015 |
| Likelihood Ratio | 34,930 | 15 | ,003 |
| Linear-by-Linear Association | 6,830 | 1 | ,009 |
| N of Valid Cases | 153 | | |

a. 14 cells (58,3%) have expected count less than 5. The minimum expected count is ,37.

**Symmetric Measures**

| | | Value | Asymptotic Standard Error[a] | Approximate T[b] | Approximate Significance |
|---|---|---|---|---|---|
| Nominal by Nominal | Phi | ,436 | | | ,015 |
| | Cramer's V | ,252 | | | ,015 |
| Ordinal by Ordinal | Kendall's tau-b | -,159 | ,071 | -2,191 | ,028 |
| | Gamma | -,246 | ,108 | -2,191 | ,028 |
| | Spearman Correlation | -,186 | ,083 | -2,320 | ,022[c] |
| Interval by Interval | Pearson's R | -,212 | ,072 | -2,665 | ,009[c] |
| N of Valid Cases | | 153 | | | |

a. Not assuming the null hypothesis.

b. Using the asymptotic standard error assuming the null hypothesis.

c. Based on normal approximation.

**In which way has your perception of the pharmaceutical industry changed after the COVID-19 pandemic? * Which source covid: Sources distributed by the Government**

**Crosstab**

Count

| | | Which source covid: Sources distributed by the Government | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | Used the most | 2nd place | 3rd place | 4th place | 5th place | Used least | Total |
| In which way has your perception of the pharmaceutical industry | Very positive | 12 | 6 | 3 | 2 | 0 | 1 | 24 |
| | Somewhat positive | 50 | 34 | 10 | 3 | 1 | 3 | 101 |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| changed after the COVID-19 pandemic? | Somewhat negative | 7 | 4 | 2 | 1 | 6 | 1 | 21 |
| | Very negative | 2 | 0 | 1 | 0 | 3 | 1 | 7 |
| Total | | 71 | 44 | 16 | 6 | 10 | 6 | 153 |

**Chi-Square Tests**

| | Value | df | Asymptotic Significance (2-sided) |
|---|---|---|---|
| Pearson Chi-Square | 45,415[a] | 15 | <,001 |
| Likelihood Ratio | 36,018 | 15 | ,002 |
| Linear-by-Linear Association | 13,268 | 1 | <,001 |
| N of Valid Cases | 153 | | |

a. 16 cells (66,7%) have expected count less than 5. The minimum expected count is ,27.

**Symmetric Measures**

| | | Value | Asymptotic Standard Error[a] | Approximate T[b] | Approximate Significance |
|---|---|---|---|---|---|
| Nominal by Nominal | Phi | ,545 | | | <,001 |
| | Cramer's V | ,315 | | | <,001 |
| Ordinal by Ordinal | Kendall's tau-b | ,172 | ,081 | 2,090 | ,037 |
| | Gamma | ,272 | ,124 | 2,090 | ,037 |
| | Spearman Correlation | ,195 | ,090 | 2,447 | ,016[c] |
| Interval by Interval | Pearson's R | ,295 | ,097 | 3,800 | <,001[c] |
| N of Valid Cases | | 153 | | | |

a. Not assuming the null hypothesis.

b. Using the asymptotic standard error assuming the null hypothesis.

c. Based on normal approximation.

## 8.7 Appendix 7: SPSS results H11-H12

**Case Processing Summary**

| | Cases | | | | | |
|---|---|---|---|---|---|---|
| | Valid | | Missing | | Total | |
| | N | Percent | N | Percent | N | Percent |
| What was your general opinion about the Pharmaceutical Industry before COVID? * Gender: What is your identity? | 201 | 100,0% | 0 | 0,0% | 201 | 100,0% |
| What was your general opinion about the Pharmaceutical Industry before COVID? * What is your age? | 201 | 100,0% | 0 | 0,0% | 201 | 100,0% |
| What was your general opinion about the Pharmaceutical Industry before COVID? * What is your highest level of education? | 201 | 100,0% | 0 | 0,0% | 201 | 100,0% |
| What was your general opinion about the Pharmaceutical Industry before COVID? * What is your status of employment? | 201 | 100,0% | 0 | 0,0% | 201 | 100,0% |

**What was your general opinion about the Pharmaceutical Industry before COVID? * Gender: What is your identity?**

**Crosstab**

Count

| | | Gender: What is your identity? | | | |
|---|---|---|---|---|---|
| | | Female | Male | Non-binary | Total |
| What was your general opinion about the Pharmaceutical Industry before COVID? | Very positive | 5 | 7 | 1 | 13 |
| | Somewhat positive | 39 | 33 | 0 | 72 |
| | Somewhat negative | 23 | 54 | 0 | 77 |
| | Very negative | 23 | 16 | 0 | 39 |
| Total | | 90 | 110 | 1 | 201 |

**Chi-Square Tests**

| | Value | df | Asymptotic Significance (2-sided) |
|---|---|---|---|
| Pearson Chi-Square | 27,290[a] | 6 | <,001 |
| Likelihood Ratio | 18,488 | 6 | ,005 |
| Linear-by-Linear Association | ,120 | 1 | ,729 |
| N of Valid Cases | 201 | | |

a. 4 cells (33,3%) have expected count less than 5. The minimum expected count is ,06.

**Symmetric Measures**

| | | Value | Asymptotic Standard Error[a] | Approximate T[b] | Approximate Significance |
|---|---|---|---|---|---|
| Nominal by Nominal | Phi | ,368 | | | <,001 |
| | Cramer's V | ,261 | | | <,001 |
| Ordinal by Ordinal | Kendall's tau-b | ,006 | ,069 | ,086 | ,931 |
| | Gamma | ,010 | ,114 | ,086 | ,931 |
| | Spearman Correlation | ,006 | ,074 | ,088 | ,930[c] |
| Interval by Interval | Pearson's R | -,025 | ,075 | -,346 | ,730[c] |
| N of Valid Cases | | 201 | | | |

a. Not assuming the null hypothesis.

b. Using the asymptotic standard error assuming the null hypothesis.

c. Based on normal approximation.

**What was your general opinion about the Pharmaceutical Industry before COVID? * What is your age?**

**Crosstab**

Count

| | | What is your age? | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | 18-24 years | 24-34 years | 35-44 years | 45-54 years | 55-64 years | 65 years and older | Total |
| What was your general opinion about the | Very positive | 1 | 4 | 0 | 4 | 4 | 0 | 13 |
| | Somewhat positive | 22 | 26 | 6 | 7 | 9 | 2 | 72 |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Pharmaceutical Industry before COVID? | Somewhat negative | 14 | 12 | 13 | 20 | 16 | 2 | 77 |
| | Very negative | 0 | 7 | 13 | 11 | 8 | 0 | 39 |
| Total | | 37 | 49 | 32 | 42 | 37 | 4 | 201 |

**Chi-Square Tests**

| | Value | df | Asymptotic Significance (2-sided) |
|---|---|---|---|
| Pearson Chi-Square | 44,328[a] | 15 | <,001 |
| Likelihood Ratio | 53,286 | 15 | <,001 |
| Linear-by-Linear Association | 7,626 | 1 | ,006 |
| N of Valid Cases | 201 | | |

a. 9 cells (37,5%) have expected count less than 5. The minimum expected count is ,26.

**Symmetric Measures**

| | | Value | Asymptotic Standard Error[a] | Approximate T[b] | Approximate Significance |
|---|---|---|---|---|---|
| Nominal by Nominal | Phi | ,470 | | | <,001 |
| | Cramer's V | ,271 | | | <,001 |
| Ordinal by Ordinal | Kendall's tau-b | ,184 | ,054 | 3,444 | <,001 |
| | Gamma | ,243 | ,071 | 3,444 | <,001 |
| | Spearman Correlation | ,226 | ,066 | 3,278 | ,001[c] |
| Interval by Interval | Pearson's R | ,195 | ,065 | 2,809 | ,005[c] |
| N of Valid Cases | | 201 | | | |

a. Not assuming the null hypothesis.

b. Using the asymptotic standard error assuming the null hypothesis.

c. Based on normal approximation.

**What was your general opinion about the Pharmaceutical Industry before COVID? * What is your highest level of education?**

**Crosstab**

Count

| | | What is your highest level of education? | | | | | |
|---|---|---|---|---|---|---|---|
| | | Less than a high school diploma | High school degree or euqivalent | Bachelor's degree (e.g. BA, BS) | Master's degree (e.g. MA, MSC, MBA) | Doctorate (e.g. PhD) | Total |
| What was your general opinion about the Pharmaceutical Industry before COVID? | Very positive | 0 | 2 | 2 | 6 | 3 | 13 |
| | Somewhat positive | 2 | 20 | 29 | 18 | 3 | 72 |
| | Somewhat negative | 1 | 20 | 25 | 26 | 5 | 77 |
| | Very negative | 6 | 10 | 8 | 11 | 4 | 39 |
| Total | | 9 | 52 | 64 | 61 | 15 | 201 |

**Chi-Square Tests**

| | Value | df | Asymptotic Significance (2-sided) |
|---|---|---|---|
| Pearson Chi-Square | 26,002[a] | 12 | ,011 |
| Likelihood Ratio | 22,256 | 12 | ,035 |
| Linear-by-Linear Association | 1,882 | 1 | ,170 |
| N of Valid Cases | 201 | | |

a. 9 cells (45,0%) have expected count less than 5. The minimum expected count is ,58.

**Symmetric Measures**

| | | Value | Asymptotic Standard Error[a] | Approximate T[b] | Approximate Significance |
|---|---|---|---|---|---|
| Nominal by Nominal | Phi | ,360 | | | ,011 |
| | Cramer's V | ,208 | | | ,011 |
| Ordinal by Ordinal | Kendall's tau-b | -,054 | ,066 | -,814 | ,416 |
| | Gamma | -,076 | ,092 | -,814 | ,416 |
| | Spearman Correlation | -,063 | ,076 | -,895 | ,372[c] |
| Interval by Interval | Pearson's R | -,097 | ,078 | -1,375 | ,171[c] |
| N of Valid Cases | | 201 | | | |

a. Not assuming the null hypothesis.

b. Using the asymptotic standard error assuming the null hypothesis.

c. Based on normal approximation.

**What was your general opinion about the Pharmaceutical Industry before COVID? * What is your status of employment?**

**Crosstab**

Count

| | What is your status of employment? | | | | | | |
|---|---|---|---|---|---|---|---|
| | Employed, working full-time | Employed, working part-time | Not employed, looking for work | Not employed, NOT looking for work | Retired | Student/working student | Total |
| Very positive | 6 | 5 | 1 | 1 | 0 | 0 | 13 |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| What was your general opinion about the Pharmaceutical Industry before COVID? | Somewhat positive | 25 | 26 | 9 | 5 | 1 | 6 | 72 |
| | Somewhat negative | 36 | 20 | 7 | 6 | 3 | 5 | 77 |
| | Very negative | 19 | 7 | 10 | 1 | 1 | 1 | 39 |
| Total | | 86 | 58 | 27 | 13 | 5 | 12 | 201 |

**Chi-Square Tests**

| | Value | df | Asymptotic Significance (2-sided) |
|---|---|---|---|
| Pearson Chi-Square | 15,778[a] | 15 | ,397 |
| Likelihood Ratio | 16,703 | 15 | ,337 |
| Linear-by-Linear Association | ,161 | 1 | ,688 |
| N of Valid Cases | 201 | | |

a. 14 cells (58,3%) have expected count less than 5. The minimum expected count is ,32.

**Symmetric Measures**

| | | Value | Asymptotic Standard Error[a] | Approximate T[b] | Approximate Significance |
|---|---|---|---|---|---|
| Nominal by Nominal | Phi | ,280 | | | ,397 |
| | Cramer's V | ,162 | | | ,397 |
| Ordinal by Ordinal | Kendall's tau-b | -,043 | ,059 | -,726 | ,468 |
| | Gamma | -,061 | ,084 | -,726 | ,468 |
| | Spearman Correlation | -,049 | ,069 | -,697 | ,486[c] |
| Interval by Interval | Pearson's R | -,028 | ,061 | -,401 | ,689[c] |

| | | | | |
|---|---|---|---|---|
| N of Valid Cases | 201 | | | |

a. Not assuming the null hypothesis.

b. Using the asymptotic standard error assuming the null hypothesis.

c. Based on normal approximation.

**Case Processing Summary**

| | Cases | | | | | |
|---|---|---|---|---|---|---|
| | Valid | | Missing | | Total | |
| | N | Percent | N | Percent | N | Percent |
| In which way has your perception of the pharmaceutical industry changed after the COVID-19 pandemic? * Gender: What is your identity? | 153 | 76,1% | 48 | 23,9% | 201 | 100,0% |
| In which way has your perception of the pharmaceutical industry changed after the COVID-19 pandemic? * What is your age? | 153 | 76,1% | 48 | 23,9% | 201 | 100,0% |
| In which way has your perception of the pharmaceutical industry changed after the COVID-19 pandemic? * What is your highest level of education? | 153 | 76,1% | 48 | 23,9% | 201 | 100,0% |
| In which way has your perception of the pharmaceutical industry changed after the COVID-19 pandemic? * What is your status of employment? | 153 | 76,1% | 48 | 23,9% | 201 | 100,0% |

**In which way has your perception of the pharmaceutical industry changed after the COVID-19 pandemic? * Gender: What is your identity?**

**Crosstab**

| | | | Gender: What is your identity? | | |
|---|---|---|---|---|---|
| | | | Female | Male | Total |
| In which way has your perception of the pharmaceutical industry changed after the COVID-19 pandemic? | Very positive | Count | 6 | 18 | 24 |
| | | % within In which way has your perception of the pharmaceutical industry changed after the COVID-19 pandemic? | 25,0% | 75,0% | 100,0% |
| | | % within Gender: What is your identity? | 9,1% | 20,7% | 15,7% |
| | | % of Total | 3,9% | 11,8% | 15,7% |
| | Somewhat positive | Count | 40 | 61 | 101 |
| | | % within In which way has your perception of the pharmaceutical industry changed after the COVID-19 pandemic? | 39,6% | 60,4% | 100,0% |
| | | % within Gender: What is your identity? | 60,6% | 70,1% | 66,0% |
| | | % of Total | 26,1% | 39,9% | 66,0% |
| | | Count | 15 | 6 | 21 |

| | | | | | |
|---|---|---|---|---|---|
| | Somewhat negative | % within In which way has your perception of the pharmaceutical industry changed after the COVID-19 pandemic? | 71,4% | 28,6% | 100,0% |
| | | % within Gender: What is your identity? | 22,7% | 6,9% | 13,7% |
| | | % of Total | 9,8% | 3,9% | 13,7% |
| | Very negative | Count | 5 | 2 | 7 |
| | | % within In which way has your perception of the pharmaceutical industry changed after the COVID-19 pandemic? | 71,4% | 28,6% | 100,0% |
| | | % within Gender: What is your identity? | 7,6% | 2,3% | 4,6% |
| | | % of Total | 3,3% | 1,3% | 4,6% |
| Total | | Count | 66 | 87 | 153 |
| | | % within In which way has your perception of the pharmaceutical industry changed after the COVID-19 pandemic? | 43,1% | 56,9% | 100,0% |
| | | % within Gender: What is your identity? | 100,0% | 100,0% | 100,0% |
| | | % of Total | 43,1% | 56,9% | 100,0% |

**Chi-Square Tests**

| | Value | df | Asymptotic Significance (2-sided) |
|---|---|---|---|

| | | | |
|---|---|---|---|
| Pearson Chi-Square | 12,869[a] | 3 | ,005 |
| Likelihood Ratio | 13,099 | 3 | ,004 |
| Linear-by-Linear Association | 11,397 | 1 | <,001 |
| N of Valid Cases | 153 | | |

a. 2 cells (25,0%) have expected count less than 5. The minimum expected count is 3,02.

**Symmetric Measures**

| | | Value | Asymptotic Standard Error[a] | Approximate T[b] | Approximate Significance |
|---|---|---|---|---|---|
| Nominal by Nominal | Phi | ,290 | | | ,005 |
| | Cramer's V | ,290 | | | ,005 |
| Ordinal by Ordinal | Kendall's tau-b | -,265 | ,071 | -3,614 | <,001 |
| | Spearman Correlation | -,278 | ,074 | -3,563 | <,001[c] |
| Interval by Interval | Pearson's R | -,274 | ,074 | -3,499 | <,001[c] |
| N of Valid Cases | | 153 | | | |

a. Not assuming the null hypothesis.

b. Using the asymptotic standard error assuming the null hypothesis.

c. Based on normal approximation.

**In which way has your perception of the pharmaceutical industry changed after the COVID-19 pandemic? * What is your age?**

**Crosstab**

| | What is your age? | | | | | | |
|---|---|---|---|---|---|---|---|
| | 18-24 years | 24-34 years | 35-44 years | 45-54 years | 55-64 years | 65 years and older | Total |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| In which way has your perception of the pharmaceutical industry changed after the COVID-19 pandemic? | Very positive | Count | 1 | 5 | 6 | 6 | 4 | 2 | 24 |
| | | % within In which way has your perception of the pharmaceutical industry changed after the COVID-19 pandemic? | 4,2% | 20,8% | 25,0% | 25,0% | 16,7% | 8,3% | 100,0% |
| | | % within What is your age? | 3,1% | 11,1% | 26,1% | 23,1% | 16,7% | 66,7% | 15,7% |
| | | % of Total | 0,7% | 3,3% | 3,9% | 3,9% | 2,6% | 1,3% | 15,7% |
| | Somewhat positive | Count | 20 | 29 | 15 | 19 | 18 | 0 | 101 |
| | | % within In which way has your perception of the pharmaceutical industry changed after the COVID-19 pandemic? | 19,8% | 28,7% | 14,9% | 18,8% | 17,8% | 0,0% | 100,0% |
| | | % within What is your age? | 62,5% | 64,4% | 65,2% | 73,1% | 75,0% | 0,0% | 66,0% |
| | | % of Total | 13,1% | 19,0% | 9,8% | 12,4% | 11,8% | 0,0% | 66,0% |
| | Somewhat negative | Count | 8 | 9 | 1 | 1 | 1 | 1 | 21 |
| | | % within In which way has your perception of the pharmaceutical industry changed after the COVID-19 pandemic? | 38,1% | 42,9% | 4,8% | 4,8% | 4,8% | 4,8% | 100,0% |
| | | % within What is your age? | 25,0% | 20,0% | 4,3% | 3,8% | 4,2% | 33,3% | 13,7% |
| | | % of Total | 5,2% | 5,9% | 0,7% | 0,7% | 0,7% | 0,7% | 13,7% |
| | Very negative | Count | 3 | 2 | 1 | 0 | 1 | 0 | 7 |
| | | % within In which way has your perception of the pharmaceutical industry changed after the COVID-19 pandemic? | 42,9% | 28,6% | 14,3% | 0,0% | 14,3% | 0,0% | 100,0% |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | % within What is your age? | 9,4% | 4,4% | 4,3% | 0,0% | 4,2% | 0,0% | 4,6% |
| | % of Total | 2,0% | 1,3% | 0,7% | 0,0% | 0,7% | 0,0% | 4,6% |
| Total | Count | 32 | 45 | 23 | 26 | 24 | 3 | 153 |
| | % within In which way has your perception of the pharmaceutical industry changed after the COVID-19 pandemic? | 20,9% | 29,4% | 15,0% | 17,0% | 15,7% | 2,0% | 100,0% |
| | % within What is your age? | 100,0% | 100,0% | 100,0% | 100,0% | 100,0% | 100,0% | 100,0% |
| | % of Total | 20,9% | 29,4% | 15,0% | 17,0% | 15,7% | 2,0% | 100,0% |

**Chi-Square Tests**

| | Value | df | Asymptotic Significance (2-sided) |
|---|---|---|---|
| Pearson Chi-Square | 26,811[a] | 15 | ,030 |
| Likelihood Ratio | 29,663 | 15 | ,013 |
| Linear-by-Linear Association | 11,765 | 1 | <,001 |
| N of Valid Cases | 153 | | |

a. 16 cells (66,7%) have expected count less than 5. The minimum expected count is ,14.

**Symmetric Measures**

| | Value | Asymptotic Standard Error[a] | Approximate T[b] | Approximate Significance |
|---|---|---|---|---|
| Phi | ,419 | | | ,030 |

| | | | | | |
|---|---|---|---|---|---|
| Nominal by Nominal | Cramer's V | ,242 | | | ,030 |
| Ordinal by Ordinal | Kendall's tau-b | -,258 | ,063 | -3,949 | <,001 |
| | Spearman Correlation | -,302 | ,072 | -3,897 | <,001[c] |
| Interval by Interval | Pearson's R | -,278 | ,076 | -3,559 | <,001[c] |
| N of Valid Cases | | 153 | | | |

a. Not assuming the null hypothesis.

b. Using the asymptotic standard error assuming the null hypothesis.

c. Based on normal approximation.

**In which way has your perception of the pharmaceutical industry changed after the COVID-19 pandemic? * What is your highest level of education?**

**Crosstab**

| | | | What is your highest level of education? | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | | Less than a high school diploma | High school degree or euqivalent | Bachelor's degree (e.g. BA, BS) | Master's degree (e.g. MA, MSC, MBA) | Doctorate (e.g. PhD) | Total |
| In which way has your perception of the pharmaceutical industry changed after the COVID-19 pandemic? | Very positive | Count | 0 | 2 | 9 | 12 | 1 | 24 |
| | | % within In which way has your perception of the pharmaceutical industry changed after the COVID-19 pandemic? | 0,0% | 8,3% | 37,5% | 50,0% | 4,2% | 100,0% |
| | | % within What is your highest level of education? | 0,0% | 5,3% | 17,3% | 24,5% | 10,0% | 15,7% |
| | | % of Total | 0,0% | 1,3% | 5,9% | 7,8% | 0,7% | 15,7% |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | Somewhat positive | Count | 2 | 26 | 32 | 33 | 8 | 101 |
| | | % within In which way has your perception of the pharmaceutical industry changed after the COVID-19 pandemic? | 2,0% | 25,7% | 31,7% | 32,7% | 7,9% | 100,0% |
| | | % within What is your highest level of education? | 50,0% | 68,4% | 61,5% | 67,3% | 80,0% | 66,0% |
| | | % of Total | 1,3% | 17,0% | 20,9% | 21,6% | 5,2% | 66,0% |
| | Somewhat negative | Count | 1 | 9 | 7 | 3 | 1 | 21 |
| | | % within In which way has your perception of the pharmaceutical industry changed after the COVID-19 pandemic? | 4,8% | 42,9% | 33,3% | 14,3% | 4,8% | 100,0% |
| | | % within What is your highest level of education? | 25,0% | 23,7% | 13,5% | 6,1% | 10,0% | 13,7% |
| | | % of Total | 0,7% | 5,9% | 4,6% | 2,0% | 0,7% | 13,7% |
| | Very negative | Count | 1 | 1 | 4 | 1 | 0 | 7 |
| | | % within In which way has your perception of the pharmaceutical industry changed after the COVID-19 pandemic? | 14,3% | 14,3% | 57,1% | 14,3% | 0,0% | 100,0% |
| | | % within What is your highest level of education? | 25,0% | 2,6% | 7,7% | 2,0% | 0,0% | 4,6% |
| | | % of Total | 0,7% | 0,7% | 2,6% | 0,7% | 0,0% | 4,6% |
| Total | | Count | 4 | 38 | 52 | 49 | 10 | 153 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| | % within In which way has your perception of the pharmaceutical industry changed after the COVID-19 pandemic? | 2,6% | 24,8% | 34,0% | 32,0% | 6,5% | 100,0% |
| | % within What is your highest level of education? | 100,0% | 100,0% | 100,0% | 100,0% | 100,0% | 100,0% |
| | % of Total | 2,6% | 24,8% | 34,0% | 32,0% | 6,5% | 100,0% |

**Chi-Square Tests**

| | Value | df | Asymptotic Significance (2-sided) |
|---|---|---|---|
| Pearson Chi-Square | 18,124[a] | 12 | ,112 |
| Likelihood Ratio | 17,951 | 12 | ,117 |
| Linear-by-Linear Association | 8,440 | 1 | ,004 |
| N of Valid Cases | 153 | | |

a. 10 cells (50,0%) have expected count less than 5. The minimum expected count is ,18.

**Symmetric Measures**

| | | Value | Asymptotic Standard Error[a] | Approximate T[b] | Approximate Significance |
|---|---|---|---|---|---|
| Nominal by Nominal | Phi | ,344 | | | ,112 |
| | Cramer's V | ,199 | | | ,112 |
| | Kendall's tau-b | -,214 | ,061 | -3,406 | <,001 |

| | | | | | |
|---|---|---|---|---|---|
| Ordinal by Ordinal | Spearman Correlation | -,246 | ,069 | -3,123 | ,002[c] |
| Interval by Interval | Pearson's R | -,236 | ,069 | -2,979 | ,003[c] |
| N of Valid Cases | | 153 | | | |

a. Not assuming the null hypothesis.

b. Using the asymptotic standard error assuming the null hypothesis.

c. Based on normal approximation.

**In which way has your perception of the pharmaceutical industry changed after the COVID-19 pandemic? * What is your status of employment?**

**Crosstab**

| | | | What is your status of employment? | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | | Employed, working full-time | Employed, working part-time | Not employed, looking for work | Not employed, NOT looking for work | Retired | Student/working student | Total |
| In which way has your perception of the pharmaceutical industry changed after the COVID-19 pandemic? | Very positive | Count | 12 | 5 | 3 | 1 | 2 | 1 | 24 |
| | | % within In which way has your perception of the pharmaceutical industry changed after the COVID-19 pandemic? | 50,0% | 20,8% | 12,5% | 4,2% | 8,3% | 4,2% | 100,0% |
| | | % within What is your status of employment? | 19,0% | 11,6% | 15,8% | 9,1% | 40,0% | 8,3% | 15,7% |
| | | % of Total | 7,8% | 3,3% | 2,0% | 0,7% | 1,3% | 0,7% | 15,7% |
| | | Count | 46 | 29 | 12 | 8 | 0 | 6 | 101 |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | Somewhat positive | % within In which way has your perception of the pharmaceutical industry changed after the COVID-19 pandemic? | 45,5% | 28,7% | 11,9% | 7,9% | 0,0% | 5,9% | 100,0% |
| | | % within What is your status of employment? | 73,0% | 67,4% | 63,2% | 72,7% | 0,0% | 50,0% | 66,0% |
| | | % of Total | 30,1% | 19,0% | 7,8% | 5,2% | 0,0% | 3,9% | 66,0% |
| | Somewhat negative | Count | 5 | 7 | 3 | 1 | 2 | 3 | 21 |
| | | % within In which way has your perception of the pharmaceutical industry changed after the COVID-19 pandemic? | 23,8% | 33,3% | 14,3% | 4,8% | 9,5% | 14,3% | 100,0% |
| | | % within What is your status of employment? | 7,9% | 16,3% | 15,8% | 9,1% | 40,0% | 25,0% | 13,7% |
| | | % of Total | 3,3% | 4,6% | 2,0% | 0,7% | 1,3% | 2,0% | 13,7% |
| | Very negative | Count | 0 | 2 | 1 | 1 | 1 | 2 | 7 |
| | | % within In which way has your perception of the pharmaceutical industry changed after the COVID-19 pandemic? | 0,0% | 28,6% | 14,3% | 14,3% | 14,3% | 28,6% | 100,0% |
| | | % within What is your status of employment? | 0,0% | 4,7% | 5,3% | 9,1% | 20,0% | 16,7% | 4,6% |
| | | % of Total | 0,0% | 1,3% | 0,7% | 0,7% | 0,7% | 1,3% | 4,6% |
| Total | | Count | 63 | 43 | 19 | 11 | 5 | 12 | 153 |
| | | % within In which way has your perception of the pharmaceutical industry changed after the COVID-19 pandemic? | 41,2% | 28,1% | 12,4% | 7,2% | 3,3% | 7,8% | 100,0% |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | % within What is your status of employment? | 100,0% | 100,0% | 100,0% | 100,0% | 100,0% | 100,0% | 100,0% |
| | % of Total | 41,2% | 28,1% | 12,4% | 7,2% | 3,3% | 7,8% | 100,0% |

**Chi-Square Tests**

| | Value | df | Asymptotic Significance (2-sided) |
|---|---|---|---|
| Pearson Chi-Square | 23,283[a] | 15 | ,078 |
| Likelihood Ratio | 25,410 | 15 | ,045 |
| Linear-by-Linear Association | 9,497 | 1 | ,002 |
| N of Valid Cases | 153 | | |

a. 15 cells (62,5%) have expected count less than 5. The minimum expected count is ,23.

**Symmetric Measures**

| | | Value | Asymptotic Standard Error[a] | Approximate T[b] | Approximate Significance |
|---|---|---|---|---|---|
| Nominal by Nominal | Phi | ,390 | | | ,078 |
| | Cramer's V | ,225 | | | ,078 |
| Ordinal by Ordinal | Kendall's tau-b | ,192 | ,072 | 2,624 | ,009 |
| | Spearman Correlation | ,220 | ,082 | 2,766 | ,006[c] |
| Interval by Interval | Pearson's R | ,250 | ,090 | 3,172 | ,002[c] |
| N of Valid Cases | | 153 | | | |

a. Not assuming the null hypothesis.

b. Using the asymptotic standard error assuming the null hypothesis.

c. Based on normal approximation.